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USE OF ADVANCED TECHNOLOGY TO SUPPORT INSPECTION TRAINING IN THE GENERAL AVIATION INDUSTRY

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Final Technical Report

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16. Abstract This report outlines the development of the General Aviation Inspection Training System (GAITS), a computer-based inspection training system for the General Aviation industry. Extending earlier work on such systems for commercial aviation, this tool is specifically designed for training aircraft maintenance technicians in inspection skills using a multi-media presentational approach with interaction opportunities between the user and the computer. It is anticipated that its use will systematize and standardize the inspection training process in the General Aviation industry. Specifically, this research, pursued over three years, achieved the following objectives: (1) task analyses of existing inspection operations at geographically dispersed GA locations, (2) the development and organization of content to support inspection training, (3) a prototype training system and (4) the dissemination of the findings of the research to the GA and aviation research communities.					
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EXECUTIVE SUMMARY

Training has been identified as the primary intervention strategy for improving the quality and reliability of aircraft inspection and for reducing errors. In light of this conclusion, this research demonstrated how advanced technology can be used for inspection training and for reducing inspector errors within the general aviation industry. The research extended earlier work on computer-based inspection training for the commercial aviation system into an inspection training system for the general aviation industry. Specifically designed for training aircraft maintenance technicians in inspection skills, the computer-based inspection training tool entitled GAITS – General Aviation Inspection Training System--uses a multi-media presentational approach with interaction opportunities between the user and the computer. It is anticipated that the use of this tool will systematize and standardize the inspection training process in the General Aviation industry.

This report describes the results of this research, pursued over three years, with the following specific objectives: (1) To conduct task analyses of existing inspection operations at geographically dispersed GA locations, (2) To develop and organize content to support inspection training, (3) To deliver a prototype training system and (4) To disseminate the findings of the research to the GA community and aviation research community.

1. INTRODUCTION

1.1. BACKGROUND AND NEED FOR RESEARCH

1.1.1. Need for Task Analyses

For the Federal Aviation Administration (FAA) to provide the public with a safe, reliable air transportation system, it is important to have a sound aircraft inspection and maintenance system (FAA, 1991). This inspection/maintenance system is a complex one composed of many interrelated human and machine components, with the human as the linchpin. Recognizing this role of the human, the FAA under the auspices of the National Plan for Aviation Human Factors has pursued human factors research (FAA, 1991; FAA, 1993). In the maintenance arena this research has focused on the aircraft inspector and the aircraft maintenance technician (AMT) (Drury, Prabhu and Gramopadhye, 1990; Shepherd, 1992; Shepherd, Layton and Gramopadhye, 1995). However, since it is difficult to eliminate errors completely given human fallibility, continuing emphasis is needed to develop interventions for making the inspection/maintenance procedures more reliable and/or more error-tolerant, especially in the General Aviation (GA) industry given its geographical dispersion of a wide range of aircraft.

In the GA environment, aircraft have their maintenance scheduled initially by a team that includes the FAA, aircraft manufacturers, and start-up operators, although these schedules may be modified to suit individual requirements and meet legal approval. In many cases the customer may follow a manufacturer's inspection program, which typically calls for a 100-hrs. and a yearly inspection. Within these schedules, there are checks at various intervals, often designated as flight line checks; overnight checks; and A, B, C, D checks. The objective of these is to conduct both routine and non-routine maintenance of the aircraft. This maintenance includes scheduling the repair of known problems; replacing items after a certain air time, number of cycles, or calendar time; repairing defects discovered previously, for example from reports logged by pilot and crew or from line inspection, or items deferred from previous maintenance; and performing scheduled repairs.

One of the areas reported in need of improvement in this maintenance process is the human inspection of aircrafts, as this aspect has been widely reported as a cause of several errors/accidents in the aircraft maintenance industry (FAA, 1991; FAA, 1993; Hobbs and Williamson, 1995). This problem has been attributed to a lack of well-defined inspection procedures for use by the aircraft maintenance industry. In response, the industry has developed *ad-hoc* measures and general guidelines to assist various personnel involved in the inspection process, resulting in various organizations developing their own internal procedures, which vary in their level of instruction/detail. Because of this situation, inspection procedures are not standardized across the industry. Moreover, they are often not based on sound principles of human factors design.

This situation is further complicated by the two potentially conflicting goals that need to be achieved by a maintenance/inspection program: safety and profitability. While the first is of paramount concern, profitability can be realized only when safety is achieved economically. For human inspectors, this means that in addition to performing the inspection task, they have to be

sensitive to both efficiency, the speed measure, and effectiveness, the accuracy measure, if they are to optimize their performance. The interrelationship between these performance measures and task factors, among others, is seen in Figure 1:

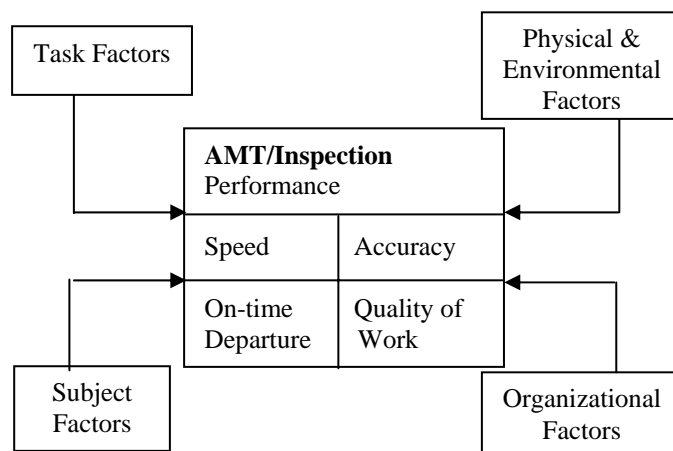


Figure 1. Factors Impacting Aircraft Inspection Performance

In the inspection/maintenance domain, accuracy denotes detecting the defects that must be addressed for the safe operation of the aircraft while keeping false alarms to a minimum. Speed means the task must be performed in a timely manner without excessive use of resources. Thus, it is crucial that inspectors work not only effectively, that is, detect all potential defects, but also efficiently. The problem is further compounded in the GA inspection environment with its large differences in the size and type of maintenance facilities, organizational and physical environment, and inspector experience and technical skills.

In response to this need, task analyses of aircraft inspection operations at geographically dispersed GA facilities operating under the Federal Aviation Regulation (FAR) Parts 91, 135, and 145 were conducted, with the research examining the entire inspection process to identify training requirements to minimize inspection errors. The specific objectives of this study were to analyze the inspection process at representative aircraft maintenance sites, develop a taxonomy of errors and, subsequently, identify training requirements to prevent the consequences of these errors. Recommendations forthcoming from these analyses were then used to devise GAITS (General Aviation Inspection Training System), a computer-based inspection training program focused on improving inspector performance. entitled GAITS).

1.1.2. Need for Computer-Based Inspection Training

Training has been shown to improve the performance of the visual inspection of both novice and experienced inspectors in the aircraft industry (Weiner, 1975; Drury and Gramopadhye, 1990; and Gramopadhye et al., 1995). Currently, the existing training for these inspectors tends to be primarily on-the-job (OJT). Nevertheless, this may not be the best method of instruction for several reasons (FAA, 1991). For example, in OJT, feedback may be infrequent, unmethodical, and/or delayed. Moreover, in certain instances feedback is economically prohibitive or infeasible

due to the nature of the task. As an alternate approach, it has been found that visual inspection skills can be effectively taught using representative photographic images which show a wide range of conditions and which provide immediate feedback on the trainee's decision (Mulzoff, 1990). This use of realistic photographic images supported by trainee feedback has been shown to be superior to training occurring only on the job (Gramopadhye et al., 1995; Latorella et al., 1992).

In light of this past research on OJT and given the many constraints and requirements imposed by the aircraft maintenance environment, one of the most viable approaches for delivering training is through Computer-Based Training (CBT). CBT offers several advantages over traditional approaches. Specifically, it is more efficient, it facilitates standardization, and it supports distance learning. In the domain of visual inspection, the use of computers for off-line inspection training has shown significant improvements in inspection performance in the laboratory environment (Blackmon and Gramopadhye, 1996; Sadasivan et al., 2005; and Sadasivan et al., 2006). Many such training delivery systems, including computer-aided instruction, computer-based multi-media training, and intelligent tutoring systems, are already being used today. Currently, most of the applications of computer technology in training have been restricted to the defense/aviation industry for complex diagnostic tasks. However, there is a need for more applications of advanced technology in training for inspection tasks drawing on the principles of training which we already know will work. In response to this need, a computer-based inspection training program, the Automated System of Self-Instruction for Specialized Training (ASSIST) (Nickles et al., 2006), was developed in cooperation with Lockheed Martin Aircraft Center and Delta Air Lines for commercial aviation. This research is now being extended to the general aviation sector through the development of the prototype training system, GAITS.

1.2. OBJECTIVES

In addition to the documented drawbacks of OJT, there does not exist an industry-wide standard/benchmark for inspector training within General Aviation. Recent FAA reports on aircraft inspection and maintenance reveal that in the absence of such a standard, maintenance organizations have developed *ad-hoc* procedures which vary in their level of detail and often do not follow human factors principles of training design. In this situation, a comprehensive off-line inspection-training program, which systematizes the training process and exposes the trainee to various simulated inspection scenarios, may have a role to play in improving performance.

The general objective of the research reported here was to demonstrate how advanced technology can be used for visual inspection training and for reducing inspector errors in the G General Aviation industry. This research extends the work of the ASSIST system, developing it into a prototype computer-based inspection training system for the General Aviation industry. Specifically designed for training aircraft maintenance technicians in inspection skills, the tool uses a multi-media presentational approach with interaction opportunities between the user and the computer. The specific objectives of the research were as follows:

- To conduct task analyses of existing inspection operations at geographically dispersed GA locations.
- To outline the methods, content and delivery system for use in the GAITS system.

- To deliver a prototype training system.
- To disseminate the findings of the research.

1.3. BENEFITS OF THE RESEARCH

The benefits of this research to the FAA and the General Aviation industry are as follows:

- It will help reduce inspection errors and improve inspection performance, ultimately impacting the safety and reliability of aircraft inspection and maintenance operations.
- It will standardize the inspection training process, providing an industry-wide benchmark for inspection training.
- It will mitigate problems inherent to OJT and can be combined with existing training programs to facilitate consistency in inspection training, to provide adaptive training and to support record keeping and performance monitoring.
- It will directly support AFS requirements and one of the AAR's mandates for reducing General Aviation accidents by developing guidelines-based human factors research through the identification and implementation of intervention strategies.

2. METHODOLOGY

The scope of this three-year project entailed a combination of educational, engineering, and field-specific applications. To accomplish the multidisciplinary requirements and meet the goals set forth in this project effectively, the following scientifically sound and thorough methodology was used to develop the inspection training system and the resulting GAITS software. The research followed a structured task analytic methodology as shown in Figure 2.

2.1. YEAR 1: ANALYSIS OF VISUAL INSPECTION PRACTICES IN THE GENERAL AVIATION INDUSTRY

The first year of the project entailed a detailed analysis of existing GA inspection practices. The initial step involved conducting a detailed literature review. Following this review, a task analysis of GA inspection was conducted at representative GA aircraft maintenance sites. Data collected during this step included identifying normal operating procedures, information transfer procedures, GA inspection guidelines and FAA-mandated procedures. Next, a detailed error taxonomy was developed to help classify typical inspection errors, and an analysis of these errors was conducted in an effort to identify preventative measures. Subsequently, recommendations were developed to support improved inspection performance.

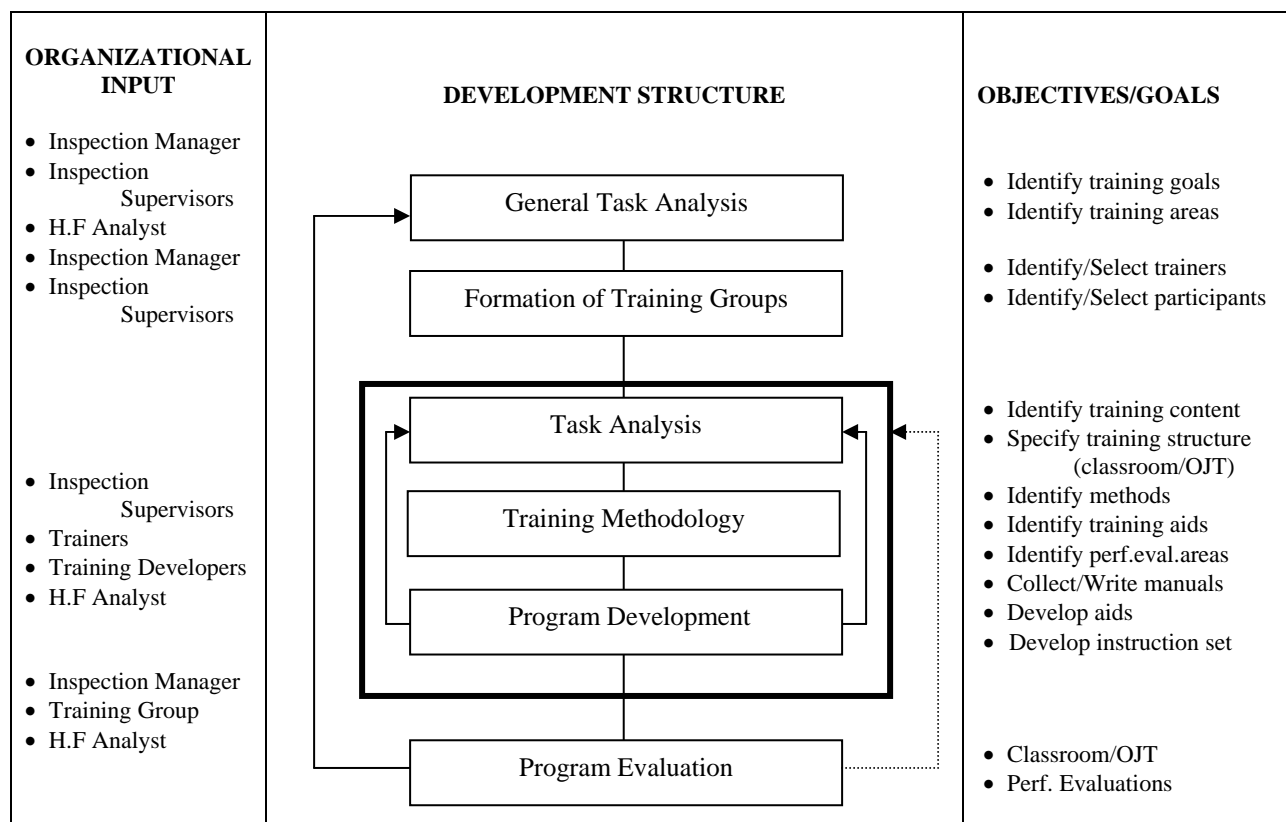


Figure 2. Model for Training Program Development in General Aviation

2.1.1. Literature Review and Background Evaluation of GA Inspection

To help direct a thorough background evaluation and literature review of GA inspection, researchers utilized a human factors database containing a digital library of related references (for more information and to download the database visit http://www.ces.clemson.edu/~agramop/cur_act.htm). The findings from this review are summarized in Section 1.1 of this report.

2.1.2. Task Analysis of Inspection Operations at GA Facilities

The literature review and background evaluation indicated a need for effective GA visual inspection training that would help reduce inspector errors in the General Aviation industry. To begin addressing this need, a task analysis of GA inspection activities was conducted at representative GA facilities. This task analysis looked at the entire inspection process in an effort to identify potential human factors interventions that could be used to minimize inspection errors.

The industry partners at 14 different maintenance sites located within the continental US provided the research team with access to their facilities, personnel, and documentation and allowed the team analyze their existing inspection protocol at various times during different shifts. The research team worked with the managers, line supervisors/shift foremen, and more than 100 inspectors and aircraft maintenance technicians. Sites with both light and heavy inspection and maintenance work governed by FAR Parts 91, 135, and 145 were observed.

At each site, the visit began with a meeting between the members of the research team and the airline personnel to define the objectives and scope of the project. The objective was to identify human-machine system mismatches that could lead to errors. Data was collected for the task analysis through job shadowing, first-hand observation, and interviewing techniques. Following initial data collection, the researchers conducted follow-up interviews with the various personnel to ensure that all aspects of the inspection process were covered. These interviews discussed issues concerning the tasks the inspectors were undertaking or had just performed and general issues concerning their work environment, both physical and organizational.

The overall intent of this task analysis was to understand the existing system of GA visual inspection. This was achieved using a formal task analytic approach (Gramopadhye and Thaker, 1998). The first step in this approach developed a description of the task, outlining in detail the steps necessary to accomplish the final goal. While various formats can be used to describe a task, this study used a hierarchical one in conjunction with a column format. Figure 3 shows a sample hierarchical task analysis (HTA) used for the inspection process. Each step was later described in detail in a column format similar to that used by FAA (1991). This column format identified the specific human subsystem--attention, sensing, perception, decision, memory, control, feedback, communication, and output--required for the completion of each step (Table 1). Using this format enabled the clear identification of the specific cognitive and manual processes critical in the performance of the tasks, including the opportunities for error.

2.1.3. Development of Error Taxonomy and Identification of Error Genotypes

Following the analysis of the inspection process, a comprehensive error classification scheme was developed to classify the potential errors by expanding each step of the task analysis into sub-steps and then listing all the failure modes for each using the Failure Modes and Effects Analysis (FMEA) approach (Hobbs and Williamson, 1995). Then, a classification scheme for errors was developed based on Rouse and Rouse's (1983) Human Error Classification Scheme (included in Appendix C3).

The error taxonomy development was a two-step process. Initially, FEMA was applied to develop the taxonomy of errors. These represent the error phenotypes, i. e., the specific observable errors providing the basis for error control. Since error prevention and the development of design principles/interventions for error avoidance rely on genotype identification, associated behavioral mechanism and system interaction, the phenotypes were characterized by the relevant aspects of the system components (e.g., human, task, environment) with which they interact. The resulting list of phenotypes, error correctability and type, and relevant error-shaping factors enable designers to recognize these errors and design control mechanisms to mitigate their effects. For this purpose, Rouse and Rouse's (1983) behavioral framework was used to classify the errors made during an inspection process and to identify the genotypes associated with each phenotype. This methodology yielded the mechanism of error formation within the task content. This error framework, which classifies human errors based on causes as well as contributing factors and events, has been employed to record and analyze human errors in several contexts such as detection and diagnostics, trouble-shooting and aircraft mission flights.

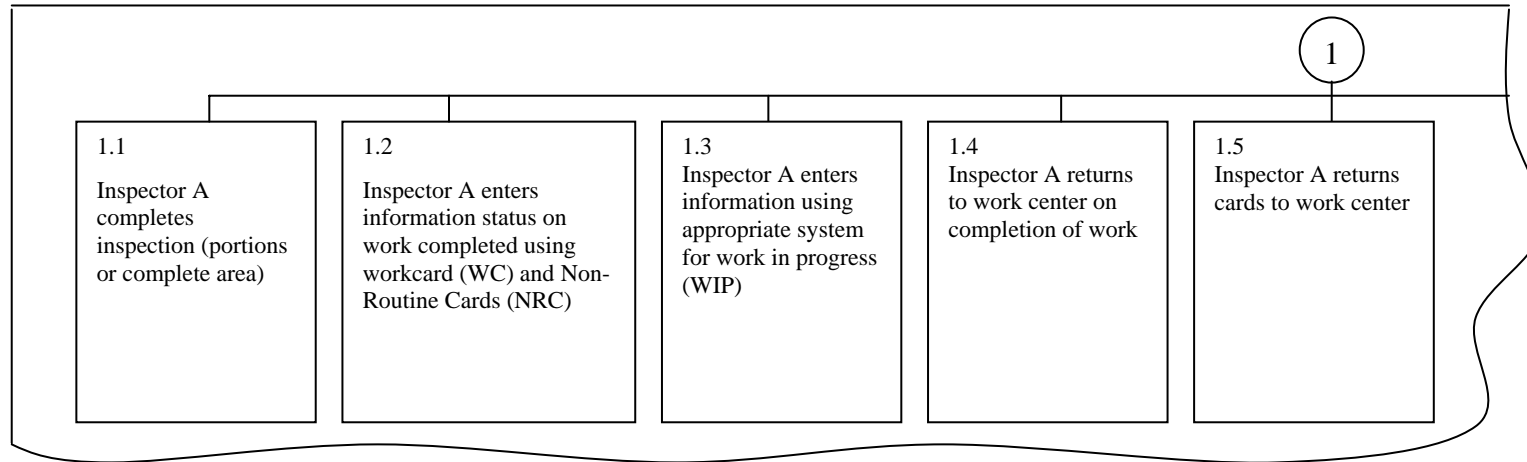


Figure 3: Hierarchical Description of the Inspection Process

Table 1: Sample Task Analysis of the Inspection Process

TASK DESCRIPTION	Task Analysis								OBSERVATIONS
	A	S	P	D	M	C	F	O	
1.0 Inspector A completes assigned work on shift A.									
1.1 Inspector A completes inspection (portions or complete area)									
1.2 Inspector A enters information status on work completed using work card (WC) and non-routine cards (NRC)	*	*	*	*	*			*	
1.3 Inspector A enters information using appropriate system for work in progress (WIP)	*	*	*	*	*				Inspector completes information on items not completed; items started but not signed off.
1.4 Inspector A returns to work center on completion of work	*							*	
1.5 Inspector A returns cards to work center	*							*	

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

To illustrate the process, Memory was identified as a critical sub-process for Sub-Task 1.3; observable errors occurring over various shifts at different sites were tabulated for all technicians for this specific sub-component (Table 2). Follow-up interviews, questionnaires and observational techniques were then used to identify and isolate error-causing mechanisms. This data was later mapped using Rouse and Rouse's (1983) error taxonomy to identify the error genotypes. Having this information, expert human factors knowledge was applied to the sub-task to identify specific interventions (e.g., job-aids) to minimize the negative effects due to specific error-shaping factors (Table 3) and to improve performance on the sub-task.

2.2. YEAR 2: DEVELOPMENT AND ORGANIZATION OF MATERIAL FOR USE IN INSPECTION TRAINING

The second year of the project built on the task analysis and error classification findings from Year 1 to identify the goals and structure of an effective GA inspection training program. First, training needs were identified and objectives developed. Then, methods essential to GA inspection training were identified and investigated. Finally, the overall structure and content for the training program was developed.

2.2.1. Development of GA Inspection Training Objectives

Observations and discussions with various inspectors and a detailed task analysis of the inspection processes led to the identification of the training objectives. As an example, the appendices show the task analyses, the error lists, the mapping of the errors using Rouse's taxonomy (Rouse and Rouse, 1983), the identification of training needs, and the mapping of the training needs using The American Society for Nondestructive Testing (2001) requirements for the following four representative tasks: 1. Cabin and under floor inspection; (Appendix A); 2. Landing gear inspection (Appendix B); 3. Inspection of Aileron (Appendix C); and 4. Inspection of the elevator (Appendix D).

2.2.2. Identification of Methods Essential to GA Inspection Training

Investigation led to the identification of the following training methods as essential to the GA environment. These were subsequently incorporated into the GAITS system.

2.2.2.1. Pre-training

Pre-training provides the trainee with information concerning the objectives and scope of the training program. During this phase, pretests are used to measure (a) the level at which trainees enter the program and (b) the cognitive or perceptual abilities that are used later to gauge the training performance or progress. According to the elaboration theory of instruction, training should be imparted from the top down, with the general level being taught before the specifics. Overviews fulfill this objective by giving the trainee an introduction to the training program and facilitating the assimilation of new material.

2.2.2.1. Feedback

Accurate and rapid feedback needs to be provided to the trainees so that they know whether the defects were classified correctly or their search strategies effective. Feedback is classified as either performance or process. Performance feedback typically consists of information on search times, search errors and decision errors while process feedback provides information to the

Table 2: Sample Error Taxonomy

TASK	ERRORS	OUTCOME
1. Inspector A completes assigned work on shift A 1.1 Inspector A completes inspection (portions or complete area) **		
1.2 Inspector A enters information on status of work completed 1.3 Inspector A enters information using system for work in progress (WIP)	E1.2.1 Inspector A enters incorrect information E1.2.2 Inspector A enters incomplete information E1.2.3 Inspector A does not enter any information E1.3.1 Inspector A enters incorrect information E1.3.2 Inspector A enters incomplete information E1.3.3 Inspector A does not enter any information	Inspector A enters correct and complete information of work completed Inspector A enters correct and complete information for work in progress (WIP)
1.4 Inspector A returns to work center on completion of work 1.5 Inspector A returns cards to location in the work center	E1.4.1 Inspector A does not return to work center on completion of work E1.5.1 Inspector A does not return work card E1.5.2 Inspector A places card in incorrect location	Inspector A returns to work center Inspector A returns cards to correct location in the work center

Table 3: Error-Shaping Factors and Interventions (Example)

Errors from Task Analysis	Error-Shaping Factors						Suggested Improvements
	Human	Task	Work Space	Equipment/Tools	Documentation	Environment (Organizational and Physical)	
E1.2.1 Inspector A enters incorrect information	Memory slip, overconfidence, incomplete knowledge, recall error, lack of knowledge, familiar shortcut					Lack of training, Loose adherence to system procedures	<ul style="list-style-type: none"> • Training, Job-Aid • Procedure development • Enforcement
E1.2.2 Inspector A enters incomplete information	Memory slip, overconfidence, incomplete knowledge, recall error, lack of knowledge, familiar shortcut					Lack of training, Loose adherence to system procedures	<ul style="list-style-type: none"> • Training, Job-Aid • Procedure development • Enforcement
E1.2.3 Inspector does not enter any information	Memory slip, overconfidence, incomplete knowledge, recall error, lack of knowledge, familiar shortcut				Lack of procedures	Lack of training, Loose adherence to system procedures	<ul style="list-style-type: none"> • Training • Procedure development • Enforcement

trainee about the search process, such as areas missed. It has been found that performance can be improved if trainees are provided feedback in the form of knowledge of results coupled with an attempt at performing the task. This process is applicable to learning facts, concepts, and procedures as well as to problem solving, cognitive strategies and motor skills. Immediate feedback provided at the beginning of the training program should be delayed until the “operational level” is reached. Providing regular feedback beyond the training session helps to keep the inspector calibrated.

2.2.2.2. Active Training

A trainee should respond actively after each new piece of material is presented by, for example, identifying a fault type or making decision on the degree of a defect. Czaja and Drury (1981) demonstrated the effectiveness of this approach for a complex inspection task.

2.2.2.3. Progressive Parts Training

Progressive parts training methodology was successfully applied to industrial skills by Salvendy and Seymour (1973). In this methodology, parts of the task are taught to criterion, with successively larger sequences of parts being introduced.

2.2.2.4. Schema Training

The aim of schema training is to help trainees generalize their training to new experiences and situations. In the context of aircraft maintenance and inspection, schemas need to be generated projecting every site and extent of the defects found on, for example, a plane wing so that the inspector is able to detect and classify a defect wherever it occurs. Thus, the inspector needs to develop a schema for defects to allow for a correct response in novel situations. The key to the development of a schema is to expose the trainee to controlled variability during training.

2.2.2.5. Feedforward Training

Feedforward training cues the trainee as to what should be perceived. When novice inspectors try to find defects on an airframe, the indications may not be obvious, unless they know what to look for and where to search.

2.2.3. Development of the Structure and Content of Training Program

This step began with a thorough analysis of the requirements and objectives of the training program. The training audience was also specified and the trainers identified. Using the objectives, the criteria against which the inspectors would be trained and their performance measured to meet quality goals, the abilities of the incoming trainees were compared to the requirements imposed by the task to determine the gaps and, hence, define the content of a training program that would help close these gaps and meet the defined criteria. In addition, the training methods identified in Section 2.2.2 were incorporated into the structure to ensure effective transfer.

2.3. YEAR 3: DEVELOPMENT AND DELIVERY OF PROTOTYPE TRAINING SYSTEM

2.3.1. Design of Application Specifications

2.3.1.1. User Needs and Requirements

Following observations and discussions with various inspectors and a detailed task analysis of the inspection processes, performance needs and training requirements were identified and mapped to the identified task functions as seen in Appendix A2. The information in the TASK DESCRIPTION and the OBSERVATION columns provided insight into the existing inspection and maintenance activities in GA, helping to identify the problem areas in the system. For every generic task description, an inspector can make one of three responses: the inspector either omits the task completely, performs it incorrectly, or performs it correctly. Mapping a particular task to a specific human subsystem helped to identify the cognitive and manual processes critical to its performance. For example, if memory was identified as a necessary subsystem for a task, then appropriate job aids could be provided to reduce the memory load for of an inspector while performing the task, thereby reducing the probability of error. Using the information from the OBSERVATION column and the human subsystem mapping, the training needs and user requirements were identified. Table 4 shows the training needs identified for the sample task 1.1.1 of the *Initiate Inspection* function.

Table 4: Training needs mapped to task functions and errors

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.0 INITIATE INSPECTION			
1.1 Use Documentation to Plan Task			
1.1.1 Read Documentation	E1.1.1.1 Does not have the correct documentation (EC1). E1.1.1.2 Does not have the documentation (EC 1). E1.1.1.3 Does read the document incorrectly (EC 6). E1.1.1.4 Does not know how to read the document (EC 5). E1.1.1.5 Does not interpret the document correctly (EC 3).	Does know to locate, read and interpret the correct documentation.	Are the inspectors trained to locate the correct documentation? Are the inspectors trained to read and interpret the correct documentation?

Similarly, the training needs were identified for the tasks in all four inspection activities using the data collected (Appendices B, C, D, and E). Since the four inspection tasks are a good representation of the inspection process in GA and since the information used was collected from various GA facilities, the training needs identified are applicable to all the inspection activities in the GA environment. As a final step, follow-up interviews and literature reviews were conducted to ensure that the training needs developed were consistent with the existing training programs in the GA environment and that all aspects of the inspection process in GA were covered.

2.3.1.2. Interface

This activity focused on developing and evaluating alternate screen designs. The resulting interfaces had the "look and feel" of the final system and included screen layout, icons and buttons. The prototypes focused on ease-of-use and simplicity in the presentation of information, while at the same time incorporating human factors principles of interface design. The prototypes were revised iteratively based on the input obtained from user testing.

2.3.1.3. Scripts and Storyboards

Once the content and the interface design were established, the next step focused on developing the production script. The script specified the text, the computer-based graphics, the simulations, and the audio content to be used. The storyboards depicted individual frames containing the specific content of the script for a single module.

2.3.2. Development of Software

The GAITS software was developed using an iterative development process, with paper prototypes being developed, tested, and refined before being committed to software. The details of the prototype training tool are provided in Section 3.

2.3.3. Software Testing and Evaluation

Following the initial development of the software, a detailed usability study was conducted on the GAITS system including heuristic evaluations and user testing. The results of these evaluations were used to further refine the software.

The individual components of the system were evaluated separately in an effort to isolate area deficiencies. A total of 16 subjects evaluated the software on the specific usability dimensions of content, presentation, and format. Initially, they were given an informational letter and instructions to ensure their understanding of the experiment. They were then asked to perform various tasks for 30 minutes. At the end of each 30-minute period, they were given a survey containing questions grouped based on the usability dimensions under evaluation. Subject responses were recorded using a 7-point Likert scale. Cronbach's Alpha Coefficient (Cronbach, 1951) was calculated for the three usability dimensions to ensure that they could be grouped into an aggregate measure and to evaluate the internal consistency of the scale used. The Wilcoxon Signed Rank test was used to evaluate the subjective data and to determine if the mean values of the scores for all three usability dimensions were significantly different from the neutral value of 4. The results from the usability analysis of both the Training Module and the Design and Analysis Module indicated that it was appropriate to group the questions in their respective dimensions and the users indicated favorable opinions concerning the overall usability of the unit (see Appendix G).

3. THE TRAINING TOOL PROTOTYPE: GAITS

3.1. SYSTEM SPECIFICATIONS

3.1.1. Development Platform

GAITS was developed using Macromedia Authorware 6.5, Macromedia Flash MX and Microsoft Access. The development work was carried out on a Pentium(R) 4, 2.4 GHz platform.

The training program integrates text, graphics, animation, video and audio, with the inputs being entered through a keyboard and a mouse.

3.1.2. Minimum System Requirements

- Intel Pentium processor or higher
- Microsoft Windows 98 SE, 2000, Me, XP, NT 4, or later
- Microsoft Internet Explorer 4.0 or later, or Netscape 4.0 or later
- 256 MB RAM

3.2. SYSTEM STRUCTURE

GAITS consists of four modules: 1) Introduction 2) Training 3) Simulator and 4) Design and Analysis. The software combines graphical user interface technologies with good usability features. The system uses an interactive, self-paced interface incorporating a multi-media presentational approach combining text, audio, images and video.

3.2.1. Introduction Module

The Introduction Module provides information to the trainee about the various facets of the program. It consists of six units.

1. **Inspection:** This unit gives an overview of the CBT tool, introducing the trainee to the different aspects in the software.
2. **Types of inspection:** This unit provides information about the various kinds of inspection found in the GA environment in addition to discussing different levels of visual inspection.

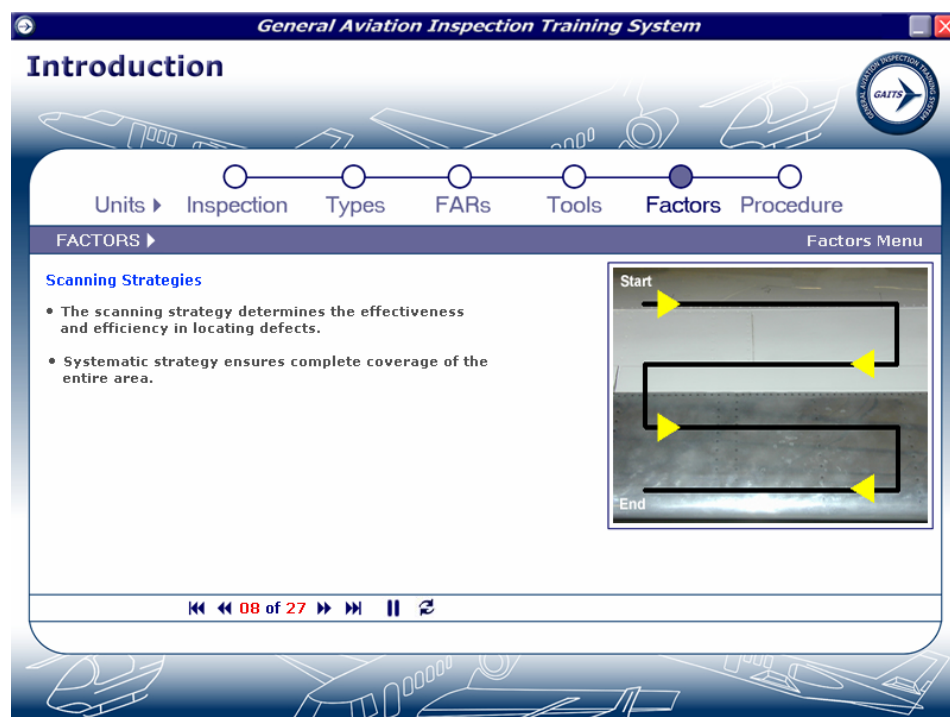


Figure 4: The Introduction Module

3. **FAR's:** This unit discusses the FAR's as they relate to GA procedures and guidelines.
4. **Tools:** This unit discusses the common tools used in GA inspection.
5. **Factors:** This unit describes the factors affecting visual inspection in GA (Figure 4).
6. **Procedures:** This unit discusses the procedure for GA inspection.

3.2.2. Training Module

The Training Module (a sample screen seen in Figure 5), which focuses on the visual inspection process, is divided into the following six units, each of which looks at one aspect of the inspection process.

1. **Initiate:** This unit introduces the inspection process where the inspector follows validated guidelines using appropriate documentation to plan the inspection task appropriately.
2. **Access:** This unit discusses locating and accessing the area to be inspected in order to see it clearly at a range close enough to ensure the reliable detection of defects.
3. **Search:** This unit focuses on scanning the inspection area for indications of defects using a good search strategy.
4. **Decision:** This unit discusses identifying the type of indication found in an inspection area, comparing it to a standard to categorize it and deciding the future course of action.
5. **Respond:** This unit explains how to write and issue a Non-Routine Repair Card (NRR).
6. **Return:** This unit emphasizes the importance of checking and returning equipment to appropriate place.

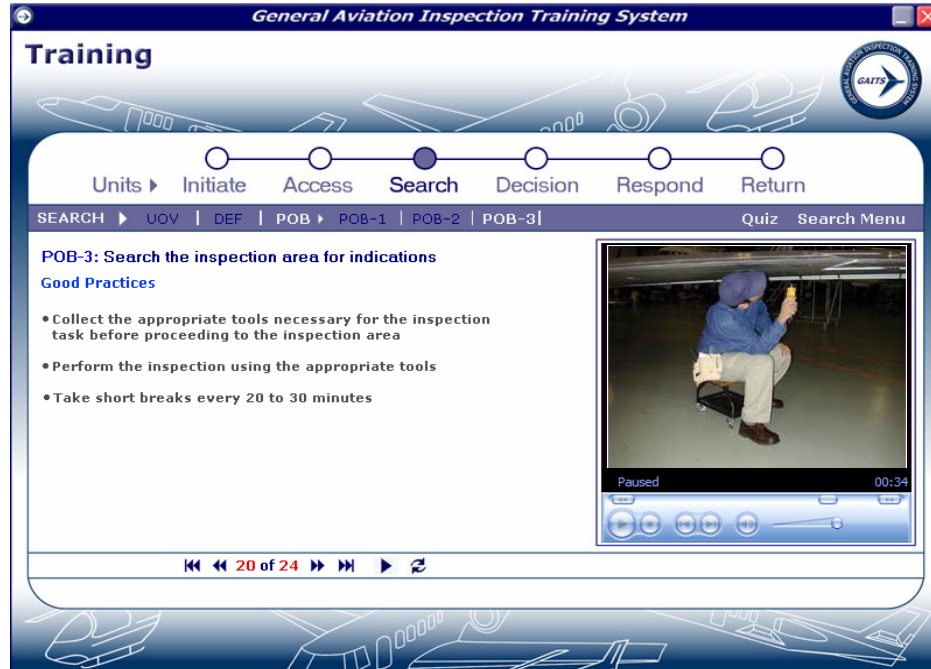


Figure 5: The Training Module

The various units comprising this module help the trainee understand the conditions which lead to error occurrence. In addition, it goes on to prescribe correct inspection procedures and steps to prevent error occurrence. Each unit ends with a quiz to check the trainee's knowledge and understanding of the material.

3.2.3. Simulator Module

To check the knowledge gained in the Training Module about proper inspection procedure, the simulator provides a utility which simulates an aircraft wing and potential inspection conditions to provide hands-on experience. Using the flash light and magnifying glass provided for use in the inspection process, the trainee visually searches for defects and, on identification of one, completes a Non-Routine Report Card in the Simulator Module (a sample screen is seen in Figure 6). The trainee's performance is tracked in real time by the Design and Analysis Module.



Figure 6: The Simulator Module

3.2.4. Design and Analysis Module

The Design and Analysis Module provides the instructor with utilities for setting up the questions in the Training Module and then tracks the performance of the trainees based on their responses. In addition, it also allows for setting up the wing simulation environment (Figure 7) and developing schemas by manipulating various task complexity factors for the Simulator Module. This feature is used to assign scenarios to specific trainees. The inspection performance of the trainee using the simulator is also tracked by this module.

4. RESULTS AND THEIR BENEFITS

The task analyses reported here in conjunction with the principles of effective training have resulted in the following deliverables:

- A technical report detailing the methodology leading to the GAITS tool
- The availability of the GAITS software on the FAA website for downloading
- A CD containing the software and source code for GAITS
- The dissemination of information concerning GAITS through various avenues

As these deliverables show, the GAITS system combines a variety of interactive multimedia technologies into a comprehensive training unit, capitalizing on a structured format. Its use of text, visual, and audio training effectively demonstrates good practices and specific inspection

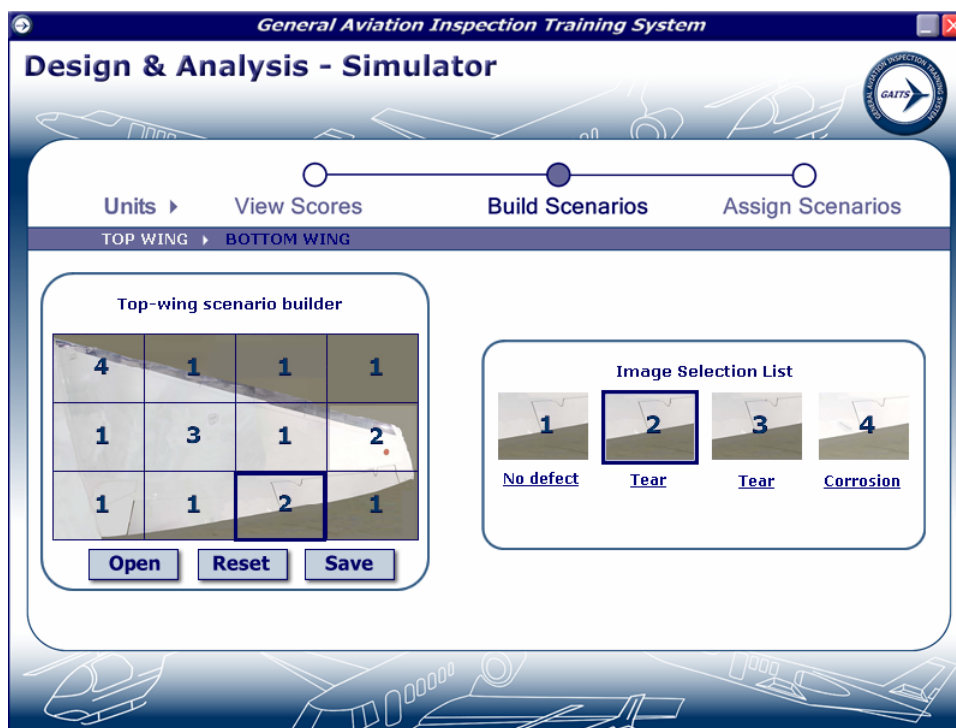


Figure 7: The Design and Analysis for the Simulator Module

strategies, taking into account different learning styles. In addition, the feedback essential for improving inspection and maintenance is provided in the Simulator Module. The specific benefits of the training program include:

Standardization

The use of a computer-based inspection training system eliminates the problems arising from using actual airframe structures and the non-standardization in training resulting from the use of different sets of defects by different instructors. The aim is that all the trainees will be trained to the same set of standards on the same set of defects.

Adaptability

This computer-based training tool can be tailored to accommodate individual differences in inspection abilities. Images of airframe structures containing defects can be created to train inspectors on particular facets of the inspection task as needed.

Convenience

Retraining can be accomplished more conveniently, and trainees can work on the system whenever they have time available. Also, trainees can work individually, eliminating the intimidation created by a classroom environment or by the presence of an instructor.

Record-keeping

The utilities of Design and Analysis allow the instructor to monitor and track individual performance easily. The record-keeping process is built into and automated on the software. Individual performance can be tracked initially for training and later for retraining.

4.1. SIGNIFICANCE AND IMPACT OF THE RESEARCH

The GA inspection training system that has been developed provides benchmarks for inspection training strategies, leading to safer, more cost-effective inspection, within the framework of the comprehensive inspection-training program. In addition, there are several other inherent advantages that serve to attenuate the problems characteristic of OJT:

Completeness

The training program developed as a result of this research serves as a single source for GA inspection training.

Adaptability

The training program can be modified to meet the needs of individual inspectors. Thus, the program can be tailored to accommodate individual differences in inspection abilities.

Efficiency

Since the training is more intensive, the trainees will be able to become more skilled within a shorter period of time.

Integration

The training system integrates different training methods (e.g., feedback training, feed-forward training, and active training) into a single comprehensive training program.

Certification

It can be used as part of the certification process. Since the record-keeping process can be automated, instructors can more easily monitor and track individual performance, initially for training and later for retraining.

Instruction

The tools developed as a part of this research can also be used by instructors in FAA-certified A&P schools for training. In this manner, for example, student AMT's could gain exposure to inspection material which they otherwise do not have access to.

4.2. DISSEMINATION

To ensure that the research initiative and the training tool developed have a broad impact in the GA and the inspection/maintenance arenas, information concerning GAITS has been actively disseminated through several forums.

4.2.1. Publications/Presentations

The results of this research have been disseminated to the aircraft maintenance community and the academic community via a number of avenues. These include, but are not restricted to, presentations at professional conferences along with publications in the conference proceedings. A list of publications can be seen below:

1. Regunath, S., Raina, S. and Gramopadhye, A.K., (2004) "Use of HTA in Establishing Training Content for Aircraft Inspection." In Proceedings of Institute of Industrial Engineers Annual Conference, Houston, TX.
2. Jacob, R. J., Subramanian, R. C. and Gramopadhye, A.K., (2004) "Customized Computer Based Training in Aircraft Inspection: Development and Evaluation." In Proceedings of Institute of Industrial Engineers Annual Conference, Houston, TX.
3. Jacob, R. J., Raina, S., Regunath, S., Subramanian, R. C. and Gramopadhye, A. K., (2004) "Improving Inspector's Performance and Reducing Errors-- The General Aviation Inspection Training Systems (GAITS)." In Proceedings of the Human Factors and Ergonomics Society Meeting, New Orleans, LA.
4. Dharwada P., Sadasivan S., Nickles G. M. and Gramopadhye A. K., (2006) "Task Analytic Methodology for the Design of an Aircraft Inspection Training Program." International Encyclopedia of Ergonomics and Human Factors, 2nd Edition.
5. Sadasivan S., Dharwada P., Nickles G. M. and Gramopadhye A. K., (2006) "Computer-Based Training Systems: Using Technology To Aid Aircraft Inspection Training." International Encyclopedia of Ergonomics and Human Factors, 2nd Edition.
6. Sadasivan S., Stringfellow P. F., and Gramopadhye A. K., (2006) "Advanced Technology and Inspection Training in the General Aviation Industry." 16th World Congress on Ergonomics, IEA 2006, Maastricht, Netherlands (to appear).

4.2.2. Distribution of GAITS Software

GAITS has been made available in two formats: CD's that include the source code and a downloadable executable installation file from the following link:
<http://www.hf.faa.gov/hfmaint/Default.aspx?tabid=363>.

5. CONCLUSIONS

The most significant impact of this research is the benefits that it provides to the GA industry and, more importantly, to the FAA:

- It will standardize the inspection training process, providing an industry-wide benchmark for inspection training. It will help reduce inspection errors and improve inspection performance, ultimately impacting the safety and the reliability of aircraft inspection and maintenance operations.
- It will alleviate problems inherent to OJT and can be combined with existing training programs to facilitate consistency in inspection training, provide adaptive training and support record-keeping and performance monitoring.

- It will directly support AFS requirements and an AAR mandate for reducing general aviation accidents by developing guidelines-based human factors research through the identification and implementation of intervention strategies.

But the most significant outcome from this research is the improvement in inspection performance that will be realized through the development and use of the GAITS training tool. As a result, the reliability of aircraft inspection and maintenance operations will be increased within the General Aviation environment, directly impacting on the safety of the nation's air transportation system.

Following the development of GAITS, the next logical step is to evaluate the impact of GAITS training in improving inspection performance and in reducing errors. In effect, we still need to obtain independent confirmation on its usefulness through a panel of Subject Matter Experts (SME's) and users. Specific issues that need to be addressed are:

- Do SME's perceive the content and delivery mechanisms used in GAITS to have a significant impact on improving inspector performance?
- Do users of GAITS perceive it to be useful in improving their performance?
- Finally we also need to demonstrate, using quantitative and qualitative measures that computer-based training using GAITS effectively transfers into improved performance on the hangar floor.

To address these issues, it is critical to conduct the following evaluations: 1) assessment by SME's, 2) detailed usability evaluation and 3) transfer effects of using GAITS training in improving GA inspection performance on the hangar floor.

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APPENDICES

A Cabin Under Floor Inspection and Fuselage Structural Inspection

A1 Task Analysis

A2 Error List

A3 EC Tables

A4 American Society of Non-Destructive Testing (ASNT) Guidelines

B Landing Gear Inspection

B1 Task Analysis

B2 Error List

B3 EC Tables

B4 American Society of Non-Destructive Testing (ASNT) Guidelines

C Inspection of Aileron

C1 Task Analysis

C2 Error List

C3 EC Tables

C4 American Society of Non-Destructive Testing (ASNT) Guidelines

D Inspection of Elevator

D1 Task Analysis

D2 Error List

D3 EC Tables

D4 American Society of Non-Destructive Testing (ASNT) Guidelines

E Screenshots of GAITS

E1 Introduction Module

E2 Training Module

E3 Simulator Module

E4 Design and Analysis Module

F GAITS User Manual

G Usability Analysis Survey Results

Appendix A1

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
1.0 INITIATE INSPECTION											
1.1 Use Documentation to Plan Task											
1.1.1 Read Documentation	X	X								Read the work card correctly.	Consists information on: <ul style="list-style-type: none">Identifying the correct document.Reading the correct information.
1.1.2 Plan task, strategy and mental model	X	X	X		X					Did not plan the task appropriately. (E 1.1.2.2) Planned the search strategy. Created an appropriate mental model.	Consists information on: <ul style="list-style-type: none">tasksstrategiesmental modelsplanning the appropriate taskplanning the appropriate strategycreating appropriate mental models
1.1.3 Learn type, criticality, probability, location of defects	X				X					Knew about: <ul style="list-style-type: none">different types of defects.criticality of the defects.probability of the defects.location of the defects.	Consists information on: <ul style="list-style-type: none">different types of defectscriticality of the defectsprobability of the defectslocation of the defectsCorrectly mapping the defects with criticality.Correctly mapping the defects with location.
1.1.4 Choose starting points for search			X							Selected the correct starting point.	Consists information on starting point for search. Consists of steps on correctly choosing the starting point for search.
A: Attention S: Senses P: Perception D: Decision Making M: Memory C: Control F: Feedback O: Others											

TASK DESCRIPTION	A	S	P	D	M	C	F	O	OBSERVATIONS	CONTENT
1.1.5 Choose search strategy			X						Selected the correct search strategy.	Consists information about various search strategies. Consists information on how to choose the appropriate strategy.
<i>1.2 Assemble Equipment</i>										
1.2.1 Collect supplies, lighting					X				Walked into the inspection area with the work card. (E1.1.1.2)	Consists information on tools required for a particular task.
1.2.2 Collect support equipment					X				Walked into the inspection area without the support equipment. (E1.2.2.2) Went back to collect the torch and mirror. Went back again after an hour to get rags.	Consists information on using the tools and support equipment. Consists information about the different types of mirrors, magnifying loupes and cleaning cloth. Consists information about the support equipment required for a particular task. Consists information on the substitute equipment if correct equipment not available.

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

	Task Analysis										
TASK DESCRIPTION	A	S	P	D	M	C	F	O	OBSERVATIONS	CONTENT	
1.3 Test, Calibrate Equipment											
1.3.1 Check mirror, loupe, cleaning cloth	X	X			X				Did not check the mirror. (E1.3.1.2) Did not check the loupe (E1.3.1.5) Did not check the cleaning cloth. (E1.3.1.8)	Consists information on how to check the mirror. Consists information on how to check the loupe. Consists information on how to check the cleaning cloth.	
1.3.2 Check support equipment (Boroscope)	X	X			X				Checks boroscope correctly.	Consists information about the support equipment (Boroscope). Consists information on how to check the support equipment (Boroscope). Consists information on how to handle the support equipment.	
2.0 ACCESS INSPECTION TASK											
2.1 Locate Task Area											
2.1.1 Locate task area under floor and fuselage		X			X				Located the area correctly under floor and fuselage.	Consists information on task area. Consists information on locating the correct task area. Consists information on aircraft numerical locations. Consists information on clear landmarks to help define boundaries of an inspection task.	

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
2.2 Access Inspection Area											
2.2.1 Move support equipment into place		X			X					Moved the support equipment into appropriate place	Consists information on adequate access equipment required for performing the task.
2.2.2 Removes the floor panels to gain access to the inspection area								X		Floor panels were already removed.	Consists information on how to remove the floor panels and gain access.
2.2.3 Use support equipment to reach inspection area	X	X			X					Used torch and mirror along with the boroscope to reach the inspection area.	Consists information on how to use the appropriate support equipment to reach the inspection area.
2.2.4 Move body, eyes, light, mirror and loupe as needed to cover area	X	X								Systematically moved body, eyes, light, mirror and loupe to cover the area appropriately.	Consists information on adequate amount of lighting required for the task. Consists information on initial possible position where body, eyes, light, mirror and loupe can be setup to view area. Consists information on comfortable body position while viewing the inspection area. Consists information on easily handling mirror, lighting and loupe together. Consists information on easily moving mirror, lighting and loupe together. Consists information on moving the support equipment when the inspector changes his position.

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
3.0 SEARCH FOR INDICATIONS											
3.1 Search by Fixation in Field of View											
3.1.1 Inspect the frames and structures for cracks, corrosion, loose and missing rivets			X		X					Systematically inspected one frame and structure at a time for cracks, corrosion, loose and missing rivets.	Consists information on how to inspect the frames and structures for cracks, corrosion, loose and missing rivets. Consists information on all the different types of defects. Consists information on the tools required to inspect the frames and structures.
3.1.2 Check the floor for foreign matter such as dirt, oil, lint, trash, general condition of wiring and insulation on the wiring	X	X								Checked the floor for foreign matter such as dirt, oil, lint, trash, general condition of wiring and insulation on the wiring.	Consists information on how to check the floor for foreign matter. Consists information on how to check the condition of the wiring. Consists information on how to check the insulation on the wiring. Consists information on the tools required to check the condition of wiring and insulation on the wiring.

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
3.1.3 Inspect the aircraft cable pulley for grooves and broken parts			X	X	X					Balances the body weight on his knees: strenuous. Takes help of the co-worker to move the cable. Rubs the rag against the cable.	Consists information on how to inspect an aircraft cable pulley. Consists information on the tools required to inspect an aircraft cable pulley.
3.1.4 Inspect the cables. Checks for broken parts			X	X	X					Balances the body weight on his knees: strenuous. Takes help of the co-worker to move the cable. Rubs the rag against the cable.	Consists information on how to inspect the cables. Consists information on the tools required to inspect the cables.
3.1.5 Inspect the radar cable and checks for grooves and broken parts			X	X	X					Takes help of the co-worker to identify the radar cable. Uses a tag to check for grooves and broken parts. Moves the radar cable with the help of co-worker. Inspects the radar cable with the rag of broken parts and grooves. Again moves the radar cable with the help of co-worker. Inspects the radar cable with the rag of broken parts and grooves.	Consists information on how to identify the radar cable. Consists information on how to inspect the radar cable. Consists information on the tools required to inspect the radar cable.
3.1.6 Inspect the elevator cable and checks for grooves and broken parts			X	X	X					Takes help of the co-worker to identify the elevator cable. Uses a tag to check for grooves and broken parts. Moves the elevator cable with the help of co-worker. Inspects the elevator cable with the rag of broken parts and grooves. Again moves the elevator cable with the help of co-worker. Inspects the elevator cable with the rag of broken parts and grooves.	Consists information on how to identify an elevator cable. Consists information on how to inspect an elevator cable. Consists information on the tools required to inspect an elevator cable.

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

	Task Analysis									
TASK DESCRIPTION	A	S	P	D	M	C	F	O	OBSERVATIONS	CONTENT
3.1.7 Inspect the elevator trim cable. Checks for grooves and broken parts			X	X	X				Takes help of the co-worker to identify the elevator trim cable. Uses a tag to check for grooves and broken parts. Moves the elevator trim cable with the help of co-worker. Inspects the elevator trim cable with the rag of broken parts and grooves. Again moves the elevator trim cable with the help of co-worker. Inspects the elevator trim cable with the rag of broken parts and grooves.	Consists information on how to identify an elevator trim cable. Consists information on how to inspect an elevator trim cable. Consists information on the tools required to inspect an elevator trim cable.
3.1.8 Inspect the radar trim cable. Checks for grooves and broken parts			X	X	X				Takes help of the co-worker to identify the radar trim cable. Uses a tag to check for grooves and broken parts. Moves the radar trim cable with the help of co-worker. Inspects the radar trim cable with the rag of broken parts and grooves. Again moves the radar trim cable with the help of co-worker. Inspects the radar trim cable with the rag of broken parts and grooves.	Consists information on how to identify the radar trim cable. Consists information on how to inspect the radar trim cable. Consists information on the tools required to inspect the radar trim cable.
3.1.9 Inspect pulleys and seals			X	X	X				Balances the body weight on his knees: strenuous.	Consists information on how to inspect the pulleys and seals. Consists information on the tools required to inspect the pulleys and seals.

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
3.1.10 Inspects the rivets			X		X					Uses the boroscope to inspect the rivets.	Consists information on how to inspect the rivets. Consists information on the tools required to inspect the rivets.
3.1.11 If indication found go to 4.0, else go to the next fixation										No indication	
3.1.12 Repeat steps 3.1.1 to 3.1.10											
3.1.13 If indication found go to 4.0, else go to the next fixation										No indication	
3.1.14 Repeat steps 3.1.1 to 3.1.11 till you reach the center floor board area											
3.1.15 Inspect the center floorboard for secure, no trash, safety.			X	X	X						Consists information on how to secure the center floorboard safely. Consists information on how to inspect the center floorboard for secure, no trash and safety.

A: Attention	S: Senses	P: Perception	D: Decision Making	M: Memory	C: Control	F: Feedback	O: Others
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TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
3.1.16 Inspect the left rack and the floor under it.			X	X	X					Panels were already removed before the inspection.	Consists information on how to inspect the left rack and the floor under it. Consists information on the tools required to inspect the left rack and the floor under it.
3.1.17 Inspect the unit that flashes the landing light.			X	X	X					Balances the body weight on his knees: strenuous.	Consists information on how to inspect the unit that flashes the landing light. Consists information on the tools required to inspect the unit that flashes the landing light.
3.1.18 Inspect electrical wiring, cables, and pulleys for condition and security.			X	X	X					Balances the body weight on his knees: strenuous.	Consists information on how to inspect the electrical wiring. Consists information on how to inspect the cables and pulleys for condition and safety. Consists information on the tools required to inspect the electrical wiring. Consists information on the tools required to inspect the cables and pulleys for condition and safety.
3.1.19 Inspect the draining system. Looks for water clogging and water puddles.			X	X	X					Balances the body weight on his knees: strenuous.	Consists information on how to inspect the draining system. Consists information on the tools required to inspect the draining system.
3.1.20 Inspect the different antennas on the center floorboard for condition and security.			X	X	X					Balances the body weight on his knees: strenuous.	Consists information on how to identify the different antennas. Consists information on how to inspect the different antennas. Consists information on the tools required to inspect the different antennas.

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
3.1.21 Inspect the A.C unit for condition and attachment.			X	X	X					Balances the body weight on his knees: strenuous.	Consists information on how to identify the AC unit. Consists information on how to inspect the AC unit. Consists information on the tools required to inspect the AC unit.
3.1.22 Unscrew another cover and inspects the A.C unit that cools the different plug boxes for security.			X	X	X					Did not follow the order prescribed in the work card. Relied on memory.	Consists information on how to identify the AC unit that cools the different plug boxes. Consists information on how to inspect the AC unit that cools the different plug boxes. Consists information on the tools required to inspect the AC unit that cools the different plug boxes.
3.1.23 Checks for water puddles. Ensures drains are draining (uses a boroscope).				X						Balances the body weight on his knees and completely lying on the floor occasionally: strenuous.	Consists information on how to inspect the draining system. Consists information on the tools required to inspect the draining system.
3.1.24 Inspect the flap motor, and gearbox for condition and attachment.			X	X	X					Balances the body weight on his knees: strenuous. Did not follow the order prescribed in the work card. Relied on memory.	Consists information on how to identify the flap motor and gearbox. Consists information on how to inspect the flap motor and gearbox. Consists information on the tools required to inspect the flap motor and gearbox.
3.1.25 Inspect the aileron servo for cracks, condition and attachment.			X	X	X					Did not follow the order prescribed in the work card. Relied on memory. Body posture was strenuous.	Consists information on how to identify an aileron servo. Consists information on how to inspect an aileron servo. Consists information on the tools required to inspect an aileron servo.
A: Attention S: Senses P: Perception D: Decision Making M: Memory C: Control F: Feedback O: Others											

	Task Analysis										
TASK DESCRIPTION	A	S	P	D	M	C	F	O	OBSERVATIONS	CONTENT	
3.1.26 Inspect the structure, insulation on A.C lines, screws, wiring, tubes, lines and relays.			X	X	X				Did not follow the order prescribed in the work card. Relied on memory. Body posture was strenuous.	Consists information on how to inspect the structure. Consists information on how to inspect the insulation on AC lines. Consists information on how to inspect the screws. Consists information on how to inspect the wiring, tubes, lines and relays. Consists information on the tools required to inspect the structure. Consists information on the tools required to inspect the insulation on AC lines. Consists information on the tools required to inspect the screws. Consists information on the tools required to inspect the wiring, tubes, lines and relays.	
3.1.27 Inspect pneumatic and pressure switches for condition and security.			X	X	X				Did not follow the order prescribed in the work card. Relied on memory. Body posture was strenuous.	Consists information on how to identify the pneumatic switch. Consists information on how to inspect the pneumatic switch. Consists information on the tools required to inspect the pneumatic switch. Consists information on how to identify the pressure switch. Consists information on how to inspect the pressure switch. Consists information on the tools required to inspect the pressure switch.	
A: Attention S: Senses P: Perception D: Decision Making M: Memory C: Control F: Feedback O: Others											

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
3.1.28 Inspect the safety valve for condition and attachment.			X	X	X					Did not follow the order prescribed in the work card. Relied on memory. Body posture was strenuous.	Consists information on how to identify the safety valve. Consists information on how to inspect the safety valve. Consists information on the tools required to inspect the safety valve.
3.1.29 Inspect the servo capstan adjustment for security.			X	X	X					Did not follow the order prescribed in the work card. Relied on memory. Body posture was strenuous.	Consists information on how to identify the servo capstan adjustment. Consists information on how to inspect the servo capstan adjustment. Consists information on the tools required to inspect the servo capstan adjustment.
3.1.30 Inspect the outflow and overflow valve.			X	X	X						Consists information on how to identify the outflow and overflow valve. Consists information on how to inspect the outflow and overflow valve. Consists information on the tools required to inspect the outflow and overflow valve.
A: Attention S: Senses P: Perception D: Decision Making M: Memory C: Control F: Feedback O: Others											

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
3.1.31 Repeat steps 3.1.1 to 3.1.10											Consists information on contrast between an indication and background. Consists information on peripheral visual acuity. Consists information on sufficient fixation time required to detect a target. Consists information on expected indications in a particular part of a structure.
3.1.32 If all fixations complete, go to 3.2											
3.2 Move to Next Field of View											
3.2.1 Search FOV using 3.1											Consists information on maintaining situational awareness as FOV moves. Consists information on adequate magnification needed to cover whole inspection area. Consists information on moving FOV to all positions. Consists information on scan path required to cover complete FOV.
3.2.2 If more FOV’s to search, go to 3.2											
3.2.3 If all FOV’s completed, go to 3.2.1											
A: Attention S: Senses P: Perception D: Decision Making M: Memory C: Control F: Feedback O: Others											

	Task Analysis										
TASK DESCRIPTION	A	S	P	D	M	C	F	O	OBSERVATIONS	CONTENT	
3.3 Move to Next Inspection Area											
3.3.1 Search inspection area using 3.1 and 3.2										Consists information on path to be followed by inspector to move FOV’s over inspection area. Consists information on complete coverage. Consists information on sufficient time required for reliable search.	
3.3.2 If more area to search, go to 3.3											
3.3.3 If all area completed, stop search											

A: Attention	S: Senses	P: Perception	D: Decision Making	M: Memory	C: Control	F: Feedback	O: Others
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TASK DESCRIPTION	Task Analysis								OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O		
4.0 DECISION ON INDICATION										
4.1 Identify Indication Type										<p>Consists information on identifying the various types of indications.</p> <p>Consists information on correctly mapping the defect with area.</p> <p>Consists information on indications under special scrutiny.</p> <p>Consists information on experience required to be familiar with all indication types.</p> <p>Consists information on prototypical information with work cards.</p> <p>Consists information on correct quality and quantity of lighting required to ensure adequate recognition of indication.</p> <p>Consists information on correct terminologies used for each indication types listed in work card.</p> <p>Consists information on size or severity or severity level rejectable for a particular class of indication.</p>

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

TASK DESCRIPTION	Task Analysis								OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O		
<i>4.2 Measure Indication Size</i>										<p>Consists information on equipments required to measure indication area.</p> <p>Consists information on how to measure the indication area.</p> <p>Consists information on landmarks and work card.</p> <p>Consists information on locating and recognizing correct landmarks.</p> <p>Consists information on measuring graticule.</p> <p>Consists information on units on graticule and those specified in work card.</p>
<i>4.3 Compare Indication to Standard</i>										<p>Consists information about correct standards.</p> <p>Consists information on how to compare the indication with the standards.</p> <p>Consists information on physical comparison to standards.</p>
A: Attention S: Senses P: Perception D: Decision Making M: Memory C: Control F: Feedback O: Others										

TASK DESCRIPTION	Task Analysis								OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O		
5.0 RESPOND TO INSPECTION										
<i>5.1 Check Defect Location</i>										Consists information on correctly mapping the location with the defect. Consists information on how to check the defect location appropriately. Consists information on numerical location of data on work card.
<i>5.2 Record Defect Location</i>										Consists information on equipments required to record defect location. Consists information on how to record the defect location appropriately.
<i>5.3 Record Defect Type, Comments</i>										Consists information about various defect types. Consists information about how to record the defect type. Consists information on how to comment about defect type.
<i>5.4 Final Decision</i>										Consists information on how to make a final decision. Consists information about various types of final decisions made for various types of indications. Consists information on the difference between an indication and a standard clearly beyond acceptance limit.
5.4.1 Sign off the work card.	X				X				Ensures all the steps in the work card have been covered. Does not sign off all the steps. Signs of step 2 only in fuselage structural inspection work card.	Consists information on how to sign off a work card.

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

	Task Analysis										
TASK DESCRIPTION	A	S	P	D	M	C	F	O	OBSERVATIONS	CONTENT	
6.0 RETURN EQUIPMENT TO STORAGE											
6.1 Remove Equipment, Supplies from Inspection Area										Consists information about how to remove equipments and supplies from inspection area. Consists information on checklist of equipment and supplies to ensure nothing is left in the inspection area.	
6.2 Clean Equipment										Consists information on cleaning the equipment correctly. Consists information on correct cleaning material required. Consists information on training inspectors on correct cleaning procedures.	
6.3 Return Support Equipment to Storage										Consists information on the correct procedure to return the equipment. Consists information on the correct place to return the equipment. Consists information on how to safely move the support equipment. Consists information on the procedure for safety check of equipment prior to storage. Consists information on signing in and out the equipment correctly.	

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

Appendix A2

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.0 INITIATE INSPECTION			
<i>1.1 Use Documentation to Plan Task</i>			
1.1.1 Read Documentation	<p>E1.1.1.1 Does not have the correct documentation (EC1).</p> <p>E1.1.1.2 Does not have the documentation (EC 1).</p> <p>E1.1.1.3 Does read the document incorrectly (EC 6).</p> <p>E1.1.1.4 Does not know how to read the document (EC 5).</p> <p>E1.1.1.5 Does not interpret the document correctly (EC 3).</p>	Does know to locate, read and interpret the correct documentation.	<p>Are the inspectors trained to locate the correct documentation?</p> <p>Are the inspectors trained to read and interpret the correct documentation?</p>

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.1.2 Plan task, strategy and mental model	<p>E1.1.2.1 Does not plan the task (EC 4).</p> <p>E1.1.2.2 Does plan the task incorrectly (EC 4).</p> <p>E1.1.2.3 Does not plan the correct task (EC 4).</p> <p>E1.1.2.4 Does not plan the strategy (EC 4).</p> <p>E1.1.2.5 Does plan the strategy incorrectly (EC 4).</p> <p>E1.1.2.6 Does not plan the correct strategy (EC 4).</p> <p>E1.1.2.7 Does not create a mental model (EC 2).</p> <p>E1.1.2.8 Created a wrong mental model (EC 2).</p> <p>E1.1.2.9 Created a mental model irrelevant to task and strategy (EC 2).</p> <p>E1.1.2.10 Does not know to create a mental model (EC 2).</p>	<p>Does plan the correct task.</p> <p>Does plan the correct strategy.</p> <p>Does form the correct mental model.</p>	<p>Are the inspectors trained to plan the correct task?</p> <p>Are the inspectors trained to plan the correct strategy?</p> <p>Are the inspectors trained to form the correct mental model?</p>

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.1.3 Learn type, criticality, probability, location of defects	<p>E1.1.3.1 Does not know about the different types of defects (EC 1).</p> <p>E1.1.3.2 Does not know all the defects (EC 1).</p> <p>E1.1.3.3 Does not know about the criticality of defects (EC 1).</p> <p>E1.1.3.4 Incorrectly maps the defects with criticality (EC 1).</p> <p>E1.1.3.5 Does not know how often the defects occur (EC 1).</p> <p>E1.1.3.6 Does not know about the location of the defects (EC 1).</p> <p>E1.1.3.7 Incorrectly maps the defects with location (EC 1).</p>	<p>Does know about the different type of defects.</p> <p>Does know the correct mapping of the defects with criticality.</p> <p>Does know the probability of occurrence of defects.</p> <p>Does know the correct location of the defects.</p>	<p>Are the inspectors trained to detect the different types of defects?</p> <p>Are the inspectors trained to map the defects with criticality?</p> <p>Are the inspectors trained to gauge the defect occurrence probability?</p> <p>Are the inspectors trained to locate the defects correctly?</p>
1.1.4 Choose starting points for search	<p>E1.1.4.1 Does not know to select the starting point for search (EC 1).</p> <p>E1.1.4.2 Does not know the starting point for the search (EC 1).</p> <p>E1.1.4.3 Select the wrong starting point for search (EC 6).</p>	<p>Does know the correct starting point for search.</p>	<p>Are the inspectors well versed with how to start a search?</p>

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.1.5 Choose search strategy	<p>E1.1.5.1 Does not know what a search strategy is (EC 1).</p> <p>E1.1.5.2 Does not know to select a search strategy (EC 1).</p> <p>E1.1.5.3 Select the wrong search strategy (EC 6).</p>	Does know the correct search strategy.	Are the inspectors trained to form the correct search strategy?
<i>1.2 Assemble Equipment</i>			
1.2.1 Collect supplies, lighting			
1.2.1.1 Collect mirror	<p>E1.2.1.1.1 Does not collect the mirror (EC 1).</p> <p>E1.2.1.1.2 Does collect the faulty mirror (EC 6).</p>	Does know to collect the appropriate mirror.	Are the inspectors trained to collect the mirror?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.2.1.2 Collect magnifying loupe	<p>E1.2.1.2.1 Does not collect the magnifying loupe (EC 1).</p> <p>E1.2.1.2.2 Does collect the faulty magnifying loupe (EC 6).</p>	Does know to collect the appropriate magnifying loupe.	Are the inspectors trained to collect the magnifying loupe?
1.2.1.3 Collect cleaning cloth	E1.2.1.3.1 Does not collect the cleaning cloth (EC 1).	Does know to collect the appropriate magnifying loupe.	Are the inspectors trained to collect the cleaning cloth?
1.2.1.4 Collect measuring equipment	<p>E1.2.1.4.1 Does not collect the measuring equipment (EC 1).</p> <p>E1.2.1.4.2 Does collect the faulty measuring equipment (EC 6).</p>	Does know to collect the appropriate magnifying loupe.	Are the inspectors trained to collect the measuring equipment?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.2.1.5 Collect support equipment	<p>E1.2.1.5.1 Does not collect the support equipment (EC 1).</p> <p>E1.2.1.5.2 Does collect the faulty support equipment (EC 6).</p>	Does know to collect the appropriate magnifying loupe.	Are the inspectors trained to collect the support equipment?
1.2.1.6 Move the workbench closer to the aircraft.	<p>E1.2.1.6.1 Does not know how to move the workbench closer to the aircraft (EC 1).</p> <p>E1.2.1.6.2 Does not move the workbench closer to the aircraft (EC 6).</p>	Does move the workbench closer to the aircraft.	Are the inspectors trained on moving the support equipment closer to the aircraft?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
<i>1.3 Test, Calibrate Equipment</i>			
1.3.1 Check mirror, loupe, cleaning cloth	<p>E1.3.1.1 Does not know how to check mirror (EC 1).</p> <p>E1.3.1.2 Does not check the mirror (EC 1).</p> <p>E1.3.1.3 Does check the mirror incorrectly (EC 6).</p> <p>E1.3.1.4 Does not know how to check loupe (EC 1).</p> <p>E1.3.1.5 Does not check the loupe (EC 1).</p> <p>E1.3.1.6 Does check the loupe incorrectly (EC 6).</p> <p>E1.3.1.7 Does not know how to check cleaning cloth (EC 1).</p> <p>E1.3.1.8 Does not check the cleaning cloth (EC 1).</p> <p>E1.3.1.9 Does check the cleaning cloth incorrectly (EC 6).</p>	<p>Does know how to check the mirror.</p> <p>Does know how to check the loupe.</p> <p>Does know how to check the cleaning cloth.</p>	<p>Are the inspectors trained to check the mirror correctly?</p> <p>Are the inspectors trained to check the loupe correctly?</p> <p>Are the inspectors trained to check the cleaning cloth correctly?</p>

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.3.2 Check support equipment (Boroscope)	<p>E1.3.2.1 Does not know how to check support equipment (Boroscope) (EC 1).</p> <p>E1.3.2.2 Does not check the support equipment (Boroscope) (EC 1).</p> <p>E1.3.2.3 Does check the support equipment (Boroscope) incorrectly (EC 6).</p>	Does know how to check the support equipment (Boroscope).	Are the inspectors trained to check the support equipment correctly?
2.0 ACCESS INSPECTION TASK			
<i>2.1 Locate Task Area</i>			

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
2.1.1 Locate task area under floor and fuselage	<p>E2.1.1.1 Does not know how to locate task area under floor (EC5).</p> <p>E2.1.1.2 Does not locate the task area under the floor (EC 6).</p> <p>E2.1.1.3 Does locate the wrong task area under the floor (EC 6).</p> <p>E2.1.1.4 Does not know how to locate task area under the fuselage (EC5).</p> <p>E2.1.1.5 Does not locate the task area under the fuselage (EC 6).</p> <p>E2.1.1.6 Does locate the wrong task area under the fuselage (EC 6).</p>	<p>Does locate the correct task area under the floor.</p> <p>Does locate the correct task area under the fuselage.</p>	<p>Are the inspectors trained in locating the task area under the floor?</p> <p>Are the inspectors trained in locating the task area under the fuselage?</p>
2.2 Access Inspection Area			

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
2.2.1 Move support equipment into place	<p>E2.2.1.1 Does not know how to move support equipment into place (EC 5).</p> <p>E2.2.1.2 Does not move support equipment into place (EC 6).</p> <p>E2.2.1.3 Does move the support equipment into inappropriate place (EC 6).</p>	Does move the support equipment into correct place.	Are the inspectors trained on handling the support equipment correctly?
2.2.2 Removes the floor panels to gain access to the inspection area	<p>E2.2.2.1 Does not know how to remove the floor panels (EC 5).</p> <p>E2.2.2.2 Does not remove the floor panels (EC 6).</p>	Does remove the floor panels to gain access to the inspection area.	Are the inspectors trained on how to gain access to the different areas for inspection by removing the floor panels?
2.2.3 Use support equipment to reach inspection area	<p>E2.2.3.1 Does not know how to use support equipment to reach inspection area (EC 5).</p> <p>E2.2.3.2 Does not use the support equipment to reach inspection area (EC 6).</p> <p>E2.2.3.3 Does use the wrong support equipment to reach inspection area (EC 6).</p>	Does use the correct support equipment to reach inspection area.	Are the inspectors trained on using the support equipment to reach inspection area?
2.2.4 Move body, eyes, light, mirror and loupe as needed to cover area		Does move body, eyes, light, mirror and loupe as needed to cover area.	Are the inspectors trained on how to position themselves while inspecting a particular area?
3.0 SEARCH FOR INDICATIONS			

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
<i>3.1 Search by Fixation in Field of View</i>			
3.1.1 Inspect the frames and structures for cracks, corrosion, loose and for missing rivets.	<p>E3.1.1.1 Does not know how to inspect the frames and structures for cracks, corrosion, loose and missing rivets (EC 5).</p> <p>E3.1.1.2 Does not know how to identify the cracks, corrosion, loose and missing rivets (EC 5).</p> <p>E3.1.1.3 Does not bring the correct tools to inspect the frames and structures (EC 6).</p> <p>E3.1.1.4 Does not inspect the frames and structures for cracks, corrosion, loose and missing rivets (EC 6).</p>	Does inspect the frames and structures for cracks, corrosion, loose and for missing rivets.	Are the inspectors trained on detecting the different type of defects like cracks, corrosion, loose and missing rivets?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.2 Check the floor for foreign matter such as dirt, oil, lint, trash, general condition of wiring and insulation on the wiring.	<p>E3.1.2.1 Does not know what to look for in the floor (EC 5).</p> <p>E3.1.2.2 Does not bring the correct equipments to check the floor for foreign matter such as dirt, oil, lint, trash, general condition of wiring and insulation on the wiring (EC 6).</p> <p>E3.1.2.3 Does not check the floor for foreign matter (EC 6).</p> <p>E3.1.2.4 Does not interpret the general condition of wiring and insulation on the wiring correctly (EC 3).</p>	Does check the floor for foreign matter such as dirt, oil, lint, trash, general condition of wiring and insulation on the wiring.	<p>Are the inspectors trained on identifying foreign matter such as dirt, oil, lint, and trash?</p> <p>Are the inspectors trained on checking the wiring and insulation on the wiring?</p>

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.3 Inspect the aircraft cable pulley for grooves and broken parts.	<p>E3.1.3.1 Does not know how to inspect the aircraft cable pulley for grooves and broken parts (EC 5).</p> <p>E3.1.3.2 Does not bring the correct tools to inspect the aircraft cable pulley for grooves and broken parts (EC 6).</p> <p>E3.1.3.3 Does not inspect the aircraft cable pulley for grooves and broken parts (EC 6).</p> <p>E3.1.3.4 Does not interpret the grooves and broken parts correctly (EC 3).</p>	Does inspect the aircraft cable pulley for grooves and broken parts.	Are the inspectors trained on how to inspect an aircraft pulley for grooves and broken parts?
3.1.4 Inspect the cables for broken parts.	<p>E3.1.4.1 Does not know how to inspect the cables for broken parts (EC 5).</p> <p>E3.1.4.2 Does not bring the correct tools to inspect the cables for broken parts (EC 6).</p> <p>E3.1.4.3 Does not inspect the cables for broken parts (EC 6).</p> <p>E3.1.4.4 Does not interpret the broken parts correctly (EC 3).</p>	Does inspect the cables for broken parts.	Are the inspectors trained on inspecting cables for broken parts?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.5 Inspect the radar cable and check for grooves and broken parts.	<p>E3.1.5.1 Does not know how to inspect the radar cable for grooves and broken parts (EC 5).</p> <p>E3.1.5.2 Does not bring the correct tools to inspect the radar cable for grooves and broken parts (EC 6).</p> <p>E3.1.5.3 Does not inspect the radar cable for grooves and broken parts (EC 6).</p> <p>E3.1.5.4 Does not interpret the grooves and broken parts correctly (EC 3).</p>	Does inspect the radar cable for grooves and broken parts.	Are the inspectors trained on how to inspect a radar cable for grooves and broken parts?
3.1.6 Inspect the elevator cable and check for grooves and broken parts.	<p>E3.1.6.1 Does not know how to inspect the elevator cable for grooves and broken parts (EC 5).</p> <p>E3.1.6.2 Does not bring the correct tools to inspect the elevator cable for grooves and broken parts (EC 6).</p> <p>E3.1.6.3 Does not inspect the elevator cable for grooves and broken parts (EC 6).</p> <p>E3.1.6.4 Does not interpret the grooves and broken parts correctly (EC 3).</p>	Does inspect the elevator cable for grooves and broken parts.	Are the inspectors trained on how to inspect the elevator cable for grooves and broken parts?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.7 Inspect the elevator trim cable and check for grooves and broken parts.	<p>E3.1.7.1 Does not know how to inspect the elevator trim cable for grooves and broken parts (EC 5).</p> <p>E3.1.7.2 Does not bring the correct tools to inspect the elevator trim cable for grooves and broken parts (EC 6).</p> <p>E3.1.7.3 Does not inspect the elevator trim cable for grooves and broken parts (EC 6).</p> <p>E3.1.7.4 Does not interpret the grooves and broken parts correctly (EC 3).</p>	Does inspect the elevator trim cable for grooves and broken parts.	Are the inspectors trained on how to inspect the elevator trim cable for grooves and broken parts?
3.1.8 Inspect the radar trim cable and check for grooves and broken parts.	<p>E3.1.8.1 Does not know how to inspect the radar trim cable for grooves and broken parts (EC 5).</p> <p>E3.1.8.2 Does not bring the correct tools to inspect the radar trim cable for grooves and broken parts (EC 6).</p> <p>E3.1.8.3 Does not inspect the radar trim cable for grooves and broken parts (EC 6).</p> <p>E3.1.8.4 Does not interpret the grooves and broken parts correctly (EC 3).</p>	Does inspect the radar trim cable for grooves and broken parts.	Are the inspectors trained on how to inspect a radar trim cable for grooves and broken parts?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.9 Inspect pulleys and seals.	<p>E3.1.9.1 Does not know how to inspect pulleys and seals (EC 5).</p> <p>E3.1.9.2 Does not bring the correct tools to inspect pulleys and seals (EC 6).</p> <p>E3.1.9.3 Does not inspect pulleys and seals (EC 6).</p>	Does inspect the pulleys and seals.	Are the inspectors trained on how to inspect pulleys and seals?
3.1.10 Inspects the rivets.	<p>E3.1.10.1 Does not know to inspect rivets (EC 5).</p> <p>E3.1.10.2 Does not bring the correct tools to inspect rivets (EC 6).</p> <p>E3.1.10.3 Does not inspect rivets (EC 6).</p>	Does inspect rivets.	Are the inspectors trained on how to inspect rivets?
3.1.11 If indication found go to 4.0, else go to the next fixation.			
3.1.12 Repeat steps 3.1.1 to 3.1.10.			
3.1.13 If indication found go to 4.0, else go to the next fixation.			
3.1.14 Repeat steps 3.1.1 to 3.1.11 till you reach the center floor board area.			
3.1.15 Inspect the center floorboard for security, safety and no trash.	<p>E3.1.15.1 Does not know how to inspect the center floorboard (EC 5).</p> <p>E3.1.15.2 Does not know to secure the center floorboard safely (EC 5).</p> <p>E 3.1.15.3 Does not remove the trash (EC 6).</p>	Does inspect the center floorboard to check whether it is safely secured and ensure that there is no trash.	Are the inspectors trained on inspecting the center floorboard of an airplane for security, safety and no trash?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.16 Inspect the left rack and the floor under it.	<p>E3.1.16.1 Does not know how to inspect the left rack (EC 5).</p> <p>E3.1.16.2 Does not know to inspect the floor under it (EC 5).</p> <p>E3.1.16.3 Does not bring the correct tools to inspect the left rack (EC 6).</p> <p>E3.1.16.4 Does not bring the correct tools to inspect the floor under the left rack (EC 6).</p> <p>E3.1.16.5 Does not inspect the left rack (EC 6).</p> <p>E3.1.16.6 Does not inspect the floor under it (EC 6).</p>	Does inspect the left rack and the floor under it.	Are the inspectors trained on inspecting the left rack and floor under it?
3.1.17 Inspect the unit that flashes the landing light.	<p>E3.1.17.1 Does not know how to inspect the unit that flashes the landing light (EC 5).</p> <p>E3.1.17.2 Does not bring the correct tools to inspect the unit that flashes the landing light (EC 6).</p> <p>E3.1.17.3 Does not inspect the unit that flashes the landing light (EC 6).</p>	Does inspect the unit that flashes the landing light.	Are the inspectors trained on inspecting the unit that flashes the landing light?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.18 Inspect electrical wiring, cables, and pullies for condition and security.	<p>E3.1.18.1 Does not know how to inspect the electrical wiring, cables, and pullies for condition and security (EC 5).</p> <p>E3.1.18.2 Does not bring the correct tools to inspect the electrical wiring, cables, and pullies for condition and security (EC 6).</p> <p>E3.1.18.3 Does not inspect the electrical wiring, cables, and pullies for condition and security (EC 6).</p>	Does inspect the electrical wiring, cables, and pullies for condition and security.	<p>Are the inspectors trained on inspecting electrical wiring?</p> <p>Are the inspectors trained on inspecting cables?</p> <p>Are the inspectors trained on inspecting pullies?</p>

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.19 Inspect the draining system and look for water clogging and water puddles.	<p>E3.1.19.1 Does not know how to inspect the draining system for water clogging and water puddles (EC 5).</p> <p>E3.1.19.2 Does not bring the correct equipment to inspect the draining system for water dogging and water puddles (EC 6).</p> <p>E3.1.19.3 Does not inspect the draining system for water dogging and water puddles (EC 6).</p> <p>E3.1.19.4 Does not interpret the water clogging and water puddles correctly (EC 3).</p>	Does inspect the draining system for water dogging and water puddles.	<p>Are the inspectors trained on inspecting the draining systems for water clogging?</p> <p>Are the inspectors trained on inspecting the draining systems for the water puddles?</p>

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.20 Inspect the different antennas on the center floorboard for condition and security.	<p>E3.1.20.1 Does not know how to inspect the different antennas on the center floorboard for condition and security (EC 5).</p> <p>E3.1.20.2 Does not bring the equipments to inspect the different antennas on the center floorboard for condition and security (EC 6).</p> <p>E3.1.20.3 Does not inspect the different antennas on the center floorboard for condition and security (EC 6).</p> <p>E3.1.20.4 Does not interpret the condition and security correctly (EC 3).</p>	Does inspect the different antennas on the center floorboard for condition and security.	Are the inspectors trained on inspecting the different antennas on the center floorboard for condition and security?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.21 Inspect the A.C unit for condition and attachment.	<p>E3.1.21.1 Does not know how to inspect the A.C unit for condition and attachment. (EC 5)</p> <p>E3.1.21.2 Does not inspect the A.C unit for condition and attachment (EC 6).</p> <p>E3.1.21.3 Does inspect the A.C unit for condition and attachment incorrectly (EC 6).</p> <p>E3.1.21.4 Does not bring the correct tools for inspection (EC 6).</p> <p>E3.1.21.5 Does not interpret the condition and attachment correctly (EC 3).</p>	Does inspect the A.C unit for condition and attachment correctly.	Are the inspectors trained on inspecting the A.C Unit for condition and attachment?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.22 Inspect the A.C unit that cools the different plug boxes for security.	<p>E3.1.22.1 Does not know how to inspect the A.C unit that cools the different plug boxes for security (EC 5).</p> <p>E3.1.22.2 Does not inspect the A.C unit that cools the different plug boxes for security (EC 6).</p> <p>E3.1.22.3 Does inspect the A.C unit that cools the different plug boxes for security incorrectly (EC 6).</p> <p>E3.1.22.4 Does not bring the correct tools for inspection (EC 6).</p> <p>E3.1.22.5 Does not interpret the security condition correctly (EC 3).</p>	Does inspect the A.C unit that cools the different plug boxes for security.	Are the inspectors trained on inspecting the A.C unit that cools different plug boxes for security?
3.1.23 Checks for water puddles. Ensures drains are draining (uses a boroscope).	<p>E3.1.23.1 Does not know how to check for water puddles (EC 5).</p> <p>E3.1.23.2 Does not check for water puddles (EC 6).</p> <p>E3.1.23.3 Does check for water puddles incorrectly (EC 6).</p> <p>E3.1.23.4 Does not interpret the draining condition correctly (EC 3).</p>	Does check for water puddles correctly.	Are the inspectors trained to check the water puddles correctly?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.24 Inspect the flap motor, and gearbox for condition and attachment.	<p>E3.1.24.1 Does not know how to inspect the flap motor for condition and attachment (EC 5).</p> <p>E3.1.24.2 Does not inspect the flap motor for condition and attachment (EC 6).</p> <p>E3.1.24.3 Does inspect the flap motor for condition and attachment incorrectly (EC 6).</p> <p>E3.1.24.4 Does not know how to inspect the gearbox for condition and attachment (EC 5).</p> <p>E3.1.24.5 Does not inspect the gearbox for condition and attachment (EC 6).</p> <p>E3.1.24.6 Does inspect the gearbox for condition and attachment incorrectly (EC 6).</p> <p>E3.1.24.7 Does not interpret the condition and attachment correctly (EC 3).</p>	<p>Does know to inspect the flap motor for condition and attachment.</p> <p>Does know to inspect the gearbox for condition and attachment.</p>	<p>Are the inspectors trained on inspecting the flap motor for condition and attachment?</p> <p>Are the inspectors trained on inspecting the gearbox for condition and attachment?</p>

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.25 Inspect the aileron servo for cracks, condition and attachment.	<p>E3.1.25.1 Does not know how to inspect the aileron servo for cracks, condition and attachment (EC 5).</p> <p>E3.1.25.2 Does not inspect the aileron servo for cracks, condition and attachment (EC 6).</p> <p>E3.1.25.3 Does inspect the aileron servo for cracks, condition and attachment incorrectly (EC 6).</p> <p>E3.1.25.4 Does not interpret the crack correctly (EC 3).</p> <p>E3.1.25.5 Does not interpret the condition and attachment correctly (EC 3).</p>	Does know to inspect the aileron servo for cracks, condition and attachment.	Are the inspectors trained on inspecting the aileron servo for cracks, condition and attachment?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.26 Inspect the structure and insulation on A.C lines, screws, wiring, tubes, lines and relays.	<p>E3.1.26.1 Does not know how to inspect the structure (EC 5).</p> <p>E3.1.26.2 Does not inspect the structure (EC 6).</p> <p>E3.1.26.3 Does inspect the structure incorrectly (EC 6).</p> <p>E3.1.26.4 Does not know how to inspect the insulation on A.C lines (EC 5).</p> <p>E3.1.26.5 Does not inspect the insulation on A.C lines (EC 6).</p> <p>E3.1.26.6 Does inspect the insulation on A.C lines incorrectly (EC 6).</p> <p>E3.1.26.7 Does not know how to inspect the screws, wiring, tubes, lines and relays (EC 5).</p> <p>E3.1.26.8 Does not inspect the screws, wiring, tubes, lines and relays (EC 6).</p> <p>E3.1.26.9 Does inspect the screws, wiring, tubes, lines and relays incorrectly (EC 6).</p>	<p>Does know to inspect the structure correctly.</p> <p>Does know to inspect the insulation on A.C lines correctly.</p> <p>Does know to inspect the screws, wiring, tubes, lines and relays correctly.</p>	<p>Are the inspectors trained on inspecting the structure?</p> <p>Are the inspectors trained on inspecting the insulation on A.C lines correctly?</p> <p>Are the inspectors trained on inspecting the screws, wiring, tubes, lines and relays correctly?</p>

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.27 Inspect pneumatic and pressure switches for condition and security.	<p>E3.1.27.1 Does not know how to inspect the pneumatic switch (EC 5).</p> <p>E3.1.27.2 Does not inspect the pneumatic switch (EC 6).</p> <p>E3.1.27.3 Does inspect the pneumatic switch incorrectly (EC 6).</p> <p>E3.1.27.4 Does not know how to inspect the pressure switch (EC 5).</p> <p>E3.1.27.5 Does not inspect the pressure switch (EC 1).</p> <p>E3.1.27.6 Does inspect the pressure switch incorrectly (EC 6).</p> <p>E3.1.27.7 Does not interpret the condition and security correctly (EC 3).</p>	<p>Does know to inspect the pneumatic switch correctly.</p> <p>Does know to inspect the pressure switch correctly.</p>	<p>Are the inspectors trained on inspecting the pneumatic switch for condition and security?</p> <p>Are the inspectors trained on inspecting the pressure switch for condition and security?</p>

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.28 Inspect the safety valve for condition and attachment.	<p>E3.1.28.1 Does not know how to inspect the safety valve (EC 5).</p> <p>E3.1.28.2 Does not inspect the safety valve (EC 6).</p> <p>E3.1.28.3 Does inspect the safety valve incorrectly (EC 6).</p> <p>E3.1.28.4 Does not interpret the condition and attachment correctly (EC 3).</p>	Does know to inspect the safety valve correctly.	Are the inspectors trained on inspecting the safety valve for condition and attachment?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.29 Inspect the servo capstan adjustment for security.	<p>E3.1.29.1 Does not know how to inspect the servo capstan adjustment (EC 5).</p> <p>E3.1.29.2 Does not inspect the servo capstan adjustment (EC 6).</p> <p>E3.1.29.3 Does inspect the servo capstan adjustment incorrectly (EC 6).</p> <p>E3.1.29.4 Does not interpret the security condition correctly (EC 3).</p>	Does know to inspect the servo capstan adjustment correctly.	Are the inspectors trained to inspect servo capstan adjustment for security?
3.1.30 Inspect the outflow and overflow valve.	<p>E3.1.30.1 Does not know how to inspect outflow and overflow valve (EC 5).</p> <p>E3.1.30.2 Does not inspect the outflow and overflow valve (EC 6).</p> <p>E3.1.30.3 Does inspect the outflow and overflow valve incorrectly (EC 6).</p>	Does know to inspect the outflow and overflow valve correctly.	Are the inspectors trained to inspect outflow and overflow valve?
3.1.31 Repeat steps 3.1.1 to 3.1.10.			
3.1.32 If all fixations complete, go to 3.2.			
3.2 <i>Move to Next Field of View.</i>			
3.2.1 Search FOV using 3.1			
3.2.2 If more FOV's to search, go to 3.2.			

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.2.3 If all FOV's completed, go to 3.2.1.			
<i>3.3 Move to Next Inspection Area.</i>			
3.3.1 Search inspection area using 3.1 and 3.2.			
3.3.2 If more area to search, go to 3.3.			
3.3.3 If all area completed, stop search.			
4.0 DECISION ON INDICATION			
<i>4.1 Identify Indication Type</i>	<p>E4.1.1 Does not know the correct indication type (EC 5).</p> <p>E4.1.2 Identifies the type of defect incorrectly (EC 6).</p> <p>E4.1.3 Forgets the area where the inspector has originally identified the indication (EC 6).</p> <p>E4.1.4 Interprets the indication type incorrectly (EC 3).</p>	Does identify the correct indication.	Are the inspectors trained in identifying the correct indication type?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
4.2 Measure Indication Size	<p>E4.2.1 Does not know how to measure the indication size (EC 5).</p> <p>E 4.2.2 Does not bring the correct equipment to measure the indication size. (EC 6).</p> <p>E4.2.3 Measures the indication incorrectly (EC 6).</p> <p>E4.2.4 Interprets the measurement of indication size incorrectly (EC 3).</p>	Does measure the indication size correctly.	Are the inspectors trained in measuring the indication size correctly?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
<i>4.3 Compare Indication to Standard</i>	<p>E 4.3.1 Does not know the correct standards (EC 5).</p> <p>E4.3.2 Does not bring the correct standards documentation (EC 6).</p> <p>E4.3.3 Does not know how to compare the indication to standard (EC 5).</p> <p>E4.3.4 Compares the indication to standard incorrectly (EC 6).</p> <p>E4.3.5 Interprets the comparison incorrectly (EC 3).</p>	Does compare the indication to standard correctly.	Are the inspectors trained in comparing the indication to standard correctly?
5.0 RESPOND TO INSPECTION			
<i>5.1 Check Defect Location</i>	<p>E5.1.1 Does not know the correct defect location (EC 5).</p> <p>E5.1.2 Checks the defect location incorrectly (EC 6).</p> <p>E5.1.3 Misses the location where the inspector has originally identified the defect (EC 6).</p>	Does check the defect location correctly.	Are the inspectors trained to check the correct location of defect?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
5.2 <i>Record Defect Location</i>	<p>E5.2.1 Does not know how to record the defect location. (EC 5).</p> <p>E5.2.2 Does not bring the correct equipments to record the defect location. (EC 6).</p> <p>E5.2.3 Records the indication incorrectly (EC 6).</p>	Does record the defect location correctly.	Are the inspectors trained to record the location of defect?
5.3 <i>Record Defect Type, Comments</i>	<p>E5.3.1 Does not know the correct defect type (EC 5).</p> <p>E5.3.2 Records the type of defect incorrectly (EC 6).</p> <p>E5.3.3 Does not know how to record the comments on a particular defect type (EC 5).</p> <p>E5.3.4 Records the comments incorrectly (EC 6).</p>	Does record the defect type and comments correctly.	Are the inspectors trained to record the defect type and comments correctly?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
<i>5.4 Final Decision</i>	E5.4.1 Does not make the correct final decision (EC 6). E5.4.2 Does not know how to make a final decision (EC 5).	Does make the correct final decision.	Are the inspectors trained to make the correct final decision?
5.4.1 Sign off the work card.	E5.4.1.1 Does not know how to sign off the work card (EC 5). E5.4.1.2 Does not bring the correct work card (EC 6). E5.4.1.3 Signs off the work card incorrectly (EC 6).	Does sign off the work card correctly.	Are the inspectors trained on to sign off work card?
6.0 RETURN EQUIPMENT TO STORAGE			
<i>6.1 Remove Equipment, Supplies from Inspection Area</i>	E6.1.1 Does not know to remove the equipments from the inspection area (EC 5). E6.1.2 Does not know to remove supplies from the inspection area (EC 5). E6.1.3 Removes the equipments and supplies from the inspection area incorrectly (EC 6).	Does remove the equipment and supplies from the inspection area correctly.	Are the inspectors trained to remove the equipment and supplies from the inspection area correctly?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
6.2 <i>Clean Equipment</i>	<p>E6.2.1 Does not know how to clean the equipment correctly (EC 5).</p> <p>E6.2.2 Does not bring the correct cleaning equipment (EC 6).</p>	Does clean the equipment correctly.	Are the inspectors trained on cleaning the equipment correctly?
6.3 <i>Return Support Equipment to Storage</i>	<p>E6.3.1 Does not know where to return the support equipment (EC 5).</p> <p>E6.3.2 Does not know the correct procedure to return support equipment (EC 5).</p> <p>E6.3.3 Does not return the support equipment to storage (EC 6).</p>	Does return the support equipment to storage.	Are the inspectors trained on returning the support equipment to the storage?

Appendix A3

EC 1 TYPE ERROR	TRAINING NEEDS
<p>E1.1.1.1 Does not have the correct documentation (EC1).</p> <p>E1.1.1.2 Does not have the documentation (EC 1).</p>	<p>Are the inspectors trained to locate the correct documentation?</p>
<p>E1.1.3.1 Does not know about the different types of defects (EC 1).</p> <p>E1.1.3.2 Does not know all the defects (EC 1).</p> <p>E1.1.3.3 Does not know about the criticality of defects (EC 1).</p> <p>E1.1.3.4 Does map the defects with criticality incorrectly (EC 1).</p> <p>E1.1.3.5 Does not know how often the defects occur (EC 1).</p> <p>E1.1.3.6 Does not know about the location of the defects (EC 1).</p> <p>E1.1.3.7 Does map the defects with location incorrectly (EC 1).</p>	<p>Are the inspectors trained to detect the different types of defects?</p> <p>Are the inspectors trained to map the defects with criticality?</p> <p>Are the inspectors trained to determine the probability of the occurring defects?</p> <p>Are the inspectors trained to locate the defects correctly?</p>

EC 1 TYPE ERROR	TRAINING NEEDS
<p>E1.1.4.1 Does not know how to select the starting point for search (EC 1).</p> <p>E1.1.4.2 Does not know the starting point for the search (EC 1).</p>	<p>Are the inspectors well versed with how to start a search?</p>
<p>E1.1.5.1 Does not know what a search strategy is (EC 1).</p> <p>E1.1.5.2 Does not how to select a search strategy (EC 1).</p>	<p>Are the inspectors trained to form the correct search strategy?</p>
<p>E1.2.1.1.1 Does not collect the mirror (EC 1).</p> <p>E1.2.1.2.1 Does not collect the magnifying loupe (EC 1).</p> <p>E1.2.1.3.1 Does not collect the cleaning cloth at the required time (EC 1).</p> <p>E1.2.1.4.1 Does not collect the measuring equipment (EC 1).</p>	<p>Are the inspectors trained on collecting the appropriate equipment?</p>

EC 1 TYPE ERROR	TRAINING NEEDS
E1.2.1.5.1 Does not collect the support equipment (EC 1).	Are the inspectors trained on collecting the appropriate equipment?
E1.2.1.6.1 Does not know how to move the workbench closer to the aircraft (EC 1).	Are the inspectors trained on moving the support equipment closer to the aircraft?
E1.3.1.1 Does not check the mirror (EC 1). E1.3.1.3 Does not check the loupe (EC 1). E1.3.1.5 Does not check the cleaning cloth (EC 1).	Are the inspectors trained to check the mirror correctly? Are the inspectors trained to check the loupe correctly? Are the inspectors trained to check the cleaning cloth correctly?
E1.3.2.1 Does not know how to check support equipment (EC 1). E1.3.2.2 Does not check the support equipment (EC 1).	Are the inspectors trained to check the support equipment correctly?
E3.1.27.5 Does not inspect the pressure switch (EC 1).	Are the inspectors trained on inspecting the pneumatic switch for condition and security? Are the inspectors trained on inspecting the pressure switch for condition and security?

EC 2 TYPE ERROR	TRAINING NEEDS
<p>E1.1.2.7 Does not create a mental model (EC 2).</p> <p>E1.1.2.8 Created an incorrect mental model (EC 2).</p> <p>E1.1.2.9 Created a mental model irrelevant to task and strategy (EC 2).</p> <p>E1.1.2.10 Does not know how to create a mental model (EC 2).</p>	<p>Are the inspectors trained to form the correct mental model?</p> <p>Are the inspectors trained to plan the correct strategy?</p>

EC 3 TYPE ERROR	TRAINING NEEDS
E3.1.2.4 Does not interpret the general condition of wiring and insulation on the wiring correctly (EC 3).	<p>Are the inspectors trained on identifying foreign matter such as dirt, oil, lint, and trash?</p> <p>Are the inspectors trained on checking the wiring and insulation on the wiring?</p>
E3.1.3.4 Does not interpret the grooves and broken parts correctly (EC 3).	Are the inspectors trained on how to inspect an aircraft pulley for grooves and broken parts?
E3.1.4.4 Does not interpret the broken parts correctly (EC 3).	Are the inspectors trained on inspecting cables for broken parts?
E3.1.5.4 Does not interpret the grooves and broken parts correctly (EC 3).	Are the inspectors trained on how to inspect a radar cable for grooves and broken parts?
E3.1.6.4 Does not interpret the grooves and broken parts correctly (EC 3).	Are the inspectors trained on how to inspect the elevator cable for grooves and broken parts?
E3.1.7.4 Does not interpret the grooves and broken parts correctly (EC 3).	Are the inspectors trained on how to inspect the elevator trim cable for grooves and broken parts?
E3.1.8.4 Does not interpret the grooves and broken parts correctly (EC 3).	Are the inspectors trained on how to inspect a radar trim cable for grooves and broken parts?
E3.1.19.4 Does not interpret the water clogging and water puddles correctly (EC 3).	<p>Are the inspectors trained on inspecting the draining systems for water clogging?</p> <p>Are the inspectors trained on inspecting the draining systems for the water puddles?</p>
E3.1.20.4 Does not interpret the condition and security correctly (EC 3).	Are the inspectors trained on inspecting the different antennas on the center floorboard for condition and security?
E3.1.21.5 Does not interpret the condition and attachment correctly (EC 3).	Are the inspectors trained on inspecting the A.C Unit?

EC 3 TYPE ERROR	TRAINING NEEDS
E3.1.22.5 Does not interpret the security condition correctly (EC 3).	Are the inspectors trained on inspecting the A.C unit that cools different plug boxes for security?
E3.1.23.4 Does not interpret the draining condition correctly (EC 3).	Are the inspectors trained to check the water puddles correctly?
E3.1.24.7 Does not interpret the condition and attachment correctly (EC 3).	Are the inspectors trained on inspecting the flap motor for condition and attachment? Are the inspectors trained on inspecting the gearbox for condition and attachment?
E3.1.25.4 Does not interpret the crack correctly (EC 3).	Are the inspectors trained on inspecting the aileron servo for cracks, condition and attachment?
E3.1.25.5 Does not interpret the condition and attachment correctly (EC 3).	
E3.1.27.7 Does not interpret the condition and security correctly (EC 3).	Are the inspectors trained on inspecting the pneumatic switch for condition and security? Are the inspectors trained on inspecting the pressure switch for condition and security?
E3.1.28.4 Does not interpret the condition and attachment correctly (EC 3).	Are the inspectors trained on inspecting the safety valve for condition and attachment?
E3.1.29.4 Does not interpret the security condition correctly (EC 3).	Are the inspectors trained to inspect servo capstan adjustment for security?
E4.1.4 Interprets the indication type incorrectly (EC 3).	Are the inspectors trained in identifying the correct indication type?
E4.2.4 Interprets the measurement of indication size incorrectly (EC 3).	Are the inspectors trained in measuring the indication size correctly?

EC 3 TYPE ERROR	TRAINING NEEDS
E4.3.5 Interprets the comparison incorrectly (EC 3).	Are the inspectors trained in comparing the indication to standard correctly?

EC 4 TYPE ERROR	TRAINING NEEDS
<p>E1.1.2.1 Does not plan the task (EC 4).</p> <p>E1.1.2.2 Does plan the task incorrectly (EC 4).</p> <p>E1.1.2.3 Does not plan the correct task (EC 4).</p> <p>E1.1.2.4 Does not plan the strategy (EC 4).</p> <p>E1.1.2.5 Does plan the strategy incorrectly (EC 4).</p> <p>E1.1.2.6 Does not plan the correct strategy (EC 4).</p>	<p>Are the inspectors trained to form the correct task?</p> <p>Are the inspectors trained to form the correct mental model?</p> <p>Are the inspectors trained to plan the correct strategy?</p>

EC 5 TYPE ERROR	TRAINING NEEDS
E1.1.1.4 Does not know how to read the document (EC 5).	Are the inspectors trained to read and interpret the correct documentation?
E2.1.1.1 Does not know how to locate task area under floor (EC5). E2.1.1.4 Does not know how to locate task area under the fuselage (EC5).	Are the inspectors trained in locating the task area under the floor? Are the inspectors trained in locating the task area under the fuselage?
E2.2.1.1 Does not know how to move support equipment into place (EC 5).	Are the inspectors trained on handling the support equipment correctly?
E2.2.2.1 Does not know how to remove the floor panels (EC 5).	Are the inspectors trained on how to gain access to the different areas for inspection by removing the floor panels?
E2.2.3.1 Does not know how to use support equipment to reach inspection area (EC 5).	Are the inspectors trained on using the support equipment to reach inspection area?
E3.1.1.1 Does not know how to inspect the frames and structures for cracks, corrosion, loose and missing rivets (EC 5). E3.1.1.2 Does not know how to identify the cracks, corrosion, loose and missing rivets (EC 5).	Are the inspectors trained on detecting the different type of defects like cracks, corrosion, loose and missing rivets?
E3.1.2.1 Does not know what to look for in the floor (EC 5).	Are the inspectors trained on identifying foreign matter such as dirt, oil, lint, and trash? Are the inspectors trained on checking the wiring and insulation on the wiring?

EC 5 TYPE ERROR	TRAINING NEEDS
E3.1.3.1 Does not know how to inspect the aircraft cable pulley for grooves and broken parts (EC 5).	Are the inspectors trained on how to inspect an aircraft pulley for grooves and broken parts?
E3.1.4.1 Does not know how to inspect the cables for broken parts (EC 5).	Are the inspectors trained on inspecting cables for broken parts?
E3.1.5.1 Does not know how to inspect the radar cable for grooves and broken parts (EC 5).	Are the inspectors trained on how to inspect a radar cable for grooves and broken parts?
E3.1.6.1 Does not know how to inspect the elevator cable for grooves and broken parts (EC 5).	Are the inspectors trained on how to inspect the elevator cable for grooves and broken parts?
E3.1.7.1 Does not know how to inspect the elevator trim cable for grooves and broken parts (EC 5).	Are the inspectors trained on how to inspect the elevator trim cable for grooves and broken parts?
E3.1.8.1 Does not know how to inspect the radar trim cable for grooves and broken parts (EC 5).	Are the inspectors trained on how to inspect a radar trim cable for grooves and broken parts?
E3.1.9.1 Does not know how to inspect pulleys and seals (EC 5).	Are the inspectors trained on how to inspect pulleys and seals?
E3.1.10.1 Does not know to inspect rivets (EC 5).	Are the inspectors trained on how to inspect rivets?
E3.1.15.1 Does not know how to inspect the center floorboard (EC 5). E3.1.15.2 Does not know to secure the center floorboard safely (EC 5).	Are the inspectors trained on inspecting the center floorboard of an airplane for security, safety and no trash?
E3.1.16.1 Does not know how to inspect the left rack (EC 5). E3.1.16.2 Does not know to inspect the floor under it (EC 5).	Are the inspectors trained on inspecting the left rack and floor under it?

EC 5 TYPE ERROR	TRAINING NEEDS
E3.1.17.1 Does not know how to inspect the unit that flashes the landing light (EC 5).	Are the inspectors trained on inspecting the unit that flashes the landing light?
E3.1.18.1 Does not know how to inspect the electrical wiring, cables, and pullies for condition and security (EC 5).	Are the inspectors trained on inspecting electrical wiring?
	Are the inspectors trained on inspecting cables?
	Are the inspectors trained on inspecting pullies?
E3.1.19.1 Does not know how to inspect the draining system for water clogging and water puddles (EC 5).	Are the inspectors trained on inspecting the draining systems for water clogging?
	Are the inspectors trained on inspecting the draining systems for the water puddles?
E3.1.20.1 Does not know how to inspect the different antennas on the center floorboard for condition and security (EC 5).	Are the inspectors trained on inspecting the different antennas on the center floorboard for condition and security?
E3.1.21.1 Does not know how to inspect the A.C unit for condition and attachment (EC 5).	Are the inspectors trained on inspecting the A.C Unit for condition and attachment?
E3.1.22.1 Does not know how to inspect the A.C unit that cools the different plug boxes for security (EC 5).	Are the inspectors trained on inspecting the A.C unit that cools different plug boxes for security?
E3.1.23.1 Does not know how to check for water puddles (EC 5).	Are the inspectors trained to check the water puddles correctly?
E3.1.24.1 Does not know how to inspect the flap motor for condition and attachment (EC 5). E3.1.24.4 Does not know how to inspect the gearbox for condition and attachment (EC 5).	Are the inspectors trained on inspecting the flap motor for condition and attachment?
	Are the inspectors trained on inspecting the gearbox for condition and attachment?

EC 5 TYPE ERROR	TRAINING NEEDS
E3.1.25.1 Does not know how to inspect the aileron servo for cracks, condition and attachment (EC 5).	Are the inspectors trained on inspecting the aileron servo for cracks, condition and attachment?
E3.1.26.1 Does not know how to inspect the structure (EC 5). E3.1.26.4 Does not know how to inspect the insulation on A.C lines (EC 5). E3.1.26.7 Does not know how to inspect the screws, wiring, tubes, lines and relays (EC 5).	Are the inspectors trained on inspecting the structure? Are the inspectors trained on inspecting the insulation on A.C lines correctly? Are the inspectors trained on inspecting the screws, wiring, tubes, lines and relays correctly?
E3.1.27.1 Does not know how to inspect the pneumatic switch (EC 5). E3.1.27.4 Does not know how to inspect the pressure switch (EC 5).	Are the inspectors trained on inspecting the pneumatic switch for condition and security? Are the inspectors trained on inspecting the pressure switch for condition and security?
E3.1.28.1 Does not know how to inspect the safety valve (EC 5).	Are the inspectors trained on inspecting the safety valve for condition and attachment?
E3.1.29.1 Does not know how to inspect the servo capstan adjustment (EC 5).	Are the inspectors trained to inspect servo capstan adjustment for security?
E3.1.30.1 Does not know how to inspect outflow and overflow valve (EC 5).	Are the inspectors trained to inspect outflow and overflow valve?

EC 5 TYPE ERROR	TRAINING NEEDS
E4.1.1 Does not know the correct indication type (EC 5).	Are the inspectors trained in identifying the correct indication type?
E4.2.1 Does not know how to measure the indication size (EC 5).	Are the inspectors trained in measuring the indication size correctly?
E 4.3.1 Does not know the correct standards (EC 5). E4.3.2 Does not bring the correct standards documentation (EC 6). E4.3.3 Does not know how to compare the indication to standard (EC 5).	Are the inspectors trained in comparing the indication to standard correctly?
E5.1.1 Does not know the correct defect location (EC 5).	Are the inspectors trained to check the correct location of defect?
E5.2.1 Does not know how to record the defect location. (EC 5).	Are the inspectors trained to record the location of defect?
E5.3.1 Does not know the correct defect type (EC 5). E5.3.3 Does not know how to record the comments on a particular defect type (EC 5).	Are the inspectors trained to record the defect type and comments correctly?
E5.4.2 Does not know how to make a final decision (EC 5).	Are the inspectors trained to make the correct final decision?
E5.4.1.1 Does not know how to sign off the work card (EC 5).	Are the inspectors trained on to sign off work card?

EC 5 TYPE ERROR	TRAINING NEEDS
<p>E6.1.1 Does not know to remove the equipments from the inspection area (EC 5).</p> <p>E6.1.2 Does not know to remove supplies from the inspection area (EC 5).</p> <p>E6.1.4 Does not remove all the equipment and supplies from the inspection area (EC5).</p> <p>E6.1.5 Does not know how to close the inspection access port (EC5).</p> <p>E6.1.6 Incorrectly closes the inspection access port (EC5).</p>	<p>Are the inspectors trained to remove the equipment and supplies from the inspection area correctly?</p> <p>Are the inspectors trained to close the inspection access port?</p>
<p>E6.2.1 Does not know how to clean the equipment correctly (EC 5).</p> <p>E6.2.4 Incorrectly cleans the equipment (EC5).</p>	<p>Are the inspectors trained on cleaning the equipment correctly?</p>
<p>E6.3.1 Does not know where to return the support equipment and work card (EC 5).</p> <p>E6.3.2 Does not know the correct procedure to return support equipment and work card (EC 5).</p>	<p>Are the inspectors trained on returning the support equipment to the storage?</p>

EC 6 TYPE ERROR	TRAINING NEEDS
E1.1.1.3 Does read the document incorrectly (EC 6).	Are the inspectors trained to read and interpret the correct documentation?
	Are the inspectors well versed with how to start a search?
E1.1.4.3 Select the wrong starting point for search (EC 6).	
E1.1.5.3 Select the wrong search strategy (EC 6).	Are the inspectors trained to form the correct search strategy?
E1.2.1.1.2 Does collect the faulty mirror (EC 6).	Are the inspectors trained to collect the mirror?
E1.2.1.2.2 Does collect the faulty magnifying loupe (EC 6).	Are the inspectors trained to collect the magnifying loupe?
E1.2.1.4.2 Does collect the faulty measuring equipment (EC 6).	Are the inspectors trained to collect the measuring equipment?
E1.2.1.5.2 Does collect the faulty support equipment (EC 6).	Are the inspectors trained to collect the support equipment?
E1.2.1.6.2 Does not move the workbench closer to the aircraft. (EC 6)	Are the inspectors trained on moving the support equipment closer to the aircraft?
E1.3.1.3 Does check the mirror incorrectly (EC 6).	Are the inspectors trained to check the mirror correctly?
E1.3.1.6 Does check the loupe incorrectly (EC 6).	Are the inspectors trained to check the loupe correctly?
E1.3.1.9 Does check the cleaning cloth incorrectly (EC 6).	Are the inspectors trained to check the cleaning cloth correctly?
E1.3.2.3 Does check the support equipment incorrectly (EC 6).	Are the inspectors trained to check the support equipment correctly?

EC 6 TYPE ERROR	TRAINING NEEDS
E2.1.1.2 Does not locate the task area under the floor (EC 6). E2.1.1.3 Does locate the wrong task area under the floor (EC 6). E2.1.1.5 Does not locate the task area under the fuselage (EC 6). E2.1.1.6 Does locate the wrong task area under the fuselage (EC 6).	Are the inspectors trained in locating the task area under the floor? Are the inspectors trained in locating the task area under the fuselage?
E2.2.1.2 Does not move support equipment into place (EC 6). E2.2.1.3 Does move the support equipment into inappropriate place (EC 6).	Are the inspectors trained on handling the support equipment correctly?
E2.2.2.2 Does not remove the floor panels (EC 6).	Are the inspectors trained on how to gain access to the different areas for inspection by removing the floor panels?
E2.2.3.2 Does not use the support equipment to reach inspection area (EC 6). E2.2.3.3 Does use the wrong support equipment to reach inspection area (EC 6).	Are the inspectors trained on using the support equipment to reach inspection area?

EC 6 TYPE ERROR	TRAINING NEEDS
E2.2.3.2 Does use the wrong support equipment to reach inspection area (EC 6).	Are the inspectors trained on using the support equipment to reach inspection area?
E3.1.1.4 Does not inspect the frames and structures for cracks, corrosion, loose and missing rivets (EC 6).	Are the inspectors trained on detecting the different type of defects like cracks, corrosion, loose and missing rivets?
E3.1.2.2 Does not bring the correct equipments to check the floor for foreign matter such as dirt, oil, lint, trash, general condition of wiring and insulation on the wiring (EC 6). E3.1.2.3 Does not check the floor for foreign matter (EC 6).	Are the inspectors trained on identifying foreign matter such as dirt, oil, lint, and trash? Are the inspectors trained on checking the wiring and insulation on the wiring?
E3.1.3.2 Does not bring the correct tools to inspect the aircraft cable pulley for grooves and broken parts (EC 6). E3.1.3.3 Does not inspect the aircraft cable pulley for grooves and broken parts (EC 6).	Are the inspectors trained on how to inspect an aircraft pulley for grooves and broken parts?
E3.1.4.2 Does not bring the correct tools to inspect the cables for broken parts (EC 6). E3.1.4.3 Does not inspect the cables for broken parts (EC 6).	Are the inspectors trained on inspecting cables for broken parts?

EC 6 TYPE ERROR	TRAINING NEEDS
<p>E3.1.5.2 Does not bring the correct tools to inspect the radar cable for grooves and broken parts (EC 6).</p> <p>E3.1.5.3 Does not inspect the radar cable for grooves and broken parts (EC 6).</p>	<p>Are the inspectors trained on how to inspect a radar cable for grooves and broken parts?</p>
<p>E3.1.6.2 Does not bring the correct tools to inspect the elevator cable for grooves and broken parts (EC 6).</p>	<p>Are the inspectors trained on how to inspect the elevator cable for grooves and broken parts?</p>
<p>E3.1.7.2 Does not bring the correct tools to inspect the elevator trim cable for grooves and broken parts (EC 6).</p>	<p>Are the inspectors trained on how to inspect the elevator trim cable for grooves and broken parts?</p>
<p>E3.1.8.2 Does not bring the correct tools to inspect the radar trim cable for grooves and broken parts (EC 6).</p> <p>E3.1.8.3 Does not inspect the radar trim cable for grooves and broken parts (EC 6).</p>	<p>Are the inspectors trained on how to inspect a radar trim cable for grooves and broken parts?</p>
<p>E3.1.9.2 Does not bring the correct tools to inspect pulleys and seals (EC 6).</p> <p>E3.1.9.3 Does not inspect pulleys and seals (EC 6).</p>	<p>Are the inspectors trained on how to inspect pulleys and seals?</p>
<p>E3.1.10.2 Does not bring the correct tools to inspect rivets (EC 6).</p> <p>E3.1.10.3 Does not inspect rivets (EC 6).</p>	<p>Are the inspectors trained on how to inspect rivets?</p>

EC 6 TYPE ERROR	TRAINING NEEDS
E 3.1.15.3 Does not remove the trash (EC 6).	Are the inspectors trained on inspecting the center floorboard of an airplane for security, safety and no trash?
E3.1.16.3 Does not bring the correct tools to inspect the left rack (EC 6). E3.1.16.4 Does not bring the correct tools to inspect the floor under the left rack (EC 6). E3.1.16.5 Does not inspect the left rack (EC 6). E3.1.16.6 Does not inspect the floor under it (EC 6).	Are the inspectors trained on inspecting the left rack and floor under it?
E3.1.17.2 Does not bring the correct tools to inspect the unit that flashes the landing light (EC 6). E3.1.17.3 Does not inspect the unit that flashes the landing light (EC 6).	Are the inspectors trained on inspecting the unit that flashes the landing light?
E3.1.18.2 Does not bring the correct tools to inspect the electrical wiring, cables, and pullies for condition and security (EC 6). E3.1.18.3 Does not inspect the electrical wiring, cables, and pullies for condition and security (EC 6).	Are the inspectors trained on inspecting electrical wiring? Are the inspectors trained on inspecting cables? Are the inspectors trained on inspecting pullies?

EC 6 TYPE ERROR	TRAINING NEEDS
<p>E3.1.19.2 Does not bring the correct equipment to inspect the draining system for water dogging and water puddles (EC 6).</p> <p>E3.1.19.3 Does not inspect the draining system for water dogging and water puddles (EC 6).</p>	<p>Are the inspectors trained on inspecting the draining systems for water clogging?</p> <p>Are the inspectors trained on inspecting the draining systems for the water puddles?</p>
<p>E3.1.20.2 Does not bring the equipments to inspect the different antennas on the center floorboard for condition and security (EC 6).</p> <p>E3.1.20.3 Does not inspect the different antennas on the center floorboard for condition and security (EC 6).</p>	<p>Are the inspectors trained on inspecting the different antennas on the center floorboard for condition and security?</p>
<p>E3.1.21.2 Does not inspect the A.C unit for condition and attachment (EC 6).</p> <p>E3.1.21.3 Does inspect the A.C unit for condition and attachment incorrectly (EC 6).</p> <p>E3.1.21.4 Does not bring the correct tools for inspection (EC 6).</p>	<p>Are the inspectors trained on inspecting the A.C Unit?</p>

EC 6 TYPE ERROR	TRAINING NEEDS
<p>E3.1.22.2 Does not inspect the A.C unit that cools the different plug boxes for security (EC 6).</p> <p>E3.1.22.3 Does inspect the A.C unit that cools the different plug boxes for security incorrectly (EC 6).</p> <p>E3.1.22.4 Does not bring the correct tools for inspection (EC 6).</p>	<p>Are the inspectors trained on inspecting the A.C unit that cools different plug boxes for security?</p>
<p>E3.1.23.2 Does not check for water puddles (EC 6).</p> <p>E3.1.23.3 Does check for water puddles incorrectly (EC 6).</p>	<p>Are the inspectors trained to check the water puddles correctly?</p>
<p>E3.1.24.2 Does not inspect the flap motor for condition and attachment (EC 6).</p> <p>E3.1.24.3 Does inspect the flap motor for condition and attachment incorrectly (EC 6).</p> <p>E3.1.24.5 Does not inspect the gearbox for condition and attachment (EC 6).</p> <p>E3.1.24.6 Does inspect the gearbox for condition and attachment incorrectly (EC 6).</p>	<p>Are the inspectors trained on inspecting the flap motor for condition and attachment?</p> <p>Are the inspectors trained on inspecting the gearbox for condition and attachment?</p>

EC 6 TYPE ERROR	TRAINING NEEDS
<p>E3.1.25.2 Does not inspect the aileron servo for cracks, condition and attachment (EC 6).</p> <p>E3.1.25.3 Does inspect the aileron servo for cracks, condition and attachment incorrectly (EC 6).</p>	<p>Are the inspectors trained on inspecting the aileron servo for cracks, condition and attachment?</p>
<p>E3.1.26.2 Does not inspect the structure (EC 6).</p> <p>E3.1.26.3 Does inspect the structure incorrectly (EC 6).</p> <p>E3.1.26.5 Does not inspect the insulation on A.C lines (EC 6).</p> <p>E3.1.26.6 Does inspect the insulation on A.C lines incorrectly (EC 6).</p> <p>E3.1.26.8 Does not inspect the screws, wiring, tubes, lines and relays (EC 6).</p> <p>E3.1.26.9 Does inspect the screws, wiring, tubes, lines and relays incorrectly (EC 6).</p>	<p>Are the inspectors trained on inspecting the structure?</p> <p>Are the inspectors trained on inspecting the insulation on A.C lines correctly?</p> <p>Are the inspectors trained on inspecting the screws, wiring, tubes, lines and relays correctly?</p>

EC 6 TYPE ERROR	TRAINING NEEDS
<p>E3.1.27.2 Does not inspect the pneumatic switch (EC 6).</p> <p>E3.1.27.3 Does inspect the pneumatic switch incorrectly (EC 6).</p> <p>E3.1.27.6 Does inspect the pressure switch incorrectly (EC 6).</p>	<p>Are the inspectors trained on inspecting the pneumatic switch for condition and security?</p> <p>Are the inspectors trained on inspecting the pressure switch for condition and security?</p>
<p>E3.1.28.2 Does not inspect the safety valve (EC 6).</p> <p>E3.1.28.3 Does inspect the safety valve incorrectly (EC 6).</p>	<p>Are the inspectors trained on inspecting the safety valve for condition and attachment?</p>
<p>E3.1.29.2 Does not inspect the servo capstan adjustment (EC 6).</p> <p>E3.1.29.3 Does inspect the servo capstan adjustment incorrectly (EC 6).</p>	<p>Are the inspectors trained to inspect servo capstan adjustment for security?</p>
<p>E3.1.30.2 Does not inspect the outflow and overflow valve (EC 6).</p> <p>E3.1.30.3 Does inspect the outflow and overflow valve incorrectly (EC 6).</p>	<p>Are the inspectors trained to inspect outflow and overflow valve?</p>

EC 6 TYPE ERROR	TRAINING NEEDS
E4.1.2 Identifies the type of defect incorrectly (EC 6). E4.1.3 Forgets the area where the inspector has originally identified the indication (EC 6).	Are the inspectors trained in identifying the correct indication type?
E 4.2.2 Does not bring the correct equipment to measure the indication size. (EC 6). E4.2.3 Measures the indication incorrectly (EC 6).	Are the inspectors trained in measuring the indication size correctly?
E4.3.4 Compares the indication to standard incorrectly (EC 6).	Are the inspectors trained in comparing the indication to standard correctly?
E5.1.2 Check the defect location incorrectly. (EC 6) E5.1.3 Miss the location where the inspector has originally identified the defect. (EC 6)	Are the inspectors trained to check the location of defect?
E5.2.3 Record the indication incorrectly. (EC 6)	Are the inspectors trained to record the location of defect?
E5.3.2 Record the type of defect incorrectly. (EC 6) E5.3.3 Does not know how to record the comments on a particular defect type. (EC 6) E5.3.4 Record the comments incorrectly. (EC 6)	Are the inspectors trained to record the defect type and comments correctly?
E5.4.1 Does not make the correct final decision. (EC 6) E5.4.2 Does not know how to make a final decision. (EC 6)	Are the inspectors trained to correct final decision?
E5.4.1.3 Sign off the work card incorrectly. (EC 6)	Are the inspectors trained on how to sign off work card?

EC 6 TYPE ERROR	TRAINING NEEDS
E6.1.3 Incorrectly removes the equipments and supplies from the inspection area. (EC 6)	Are the inspectors trained to remove the equipment and supplies from the inspection area correctly?
E6.2.2 Does not bring the correct cleaning equipment. (EC 6) E6.2.3 Damages the equipment during cleaning. (EC6)	Are the inspectors trained clean the equipment correctly?
E6.3.3 Does not return the support equipment and work card. (EC 6) E6.3.4 Does not return all the support equipment. (EC6) E6.3.5 Does not return the support equipment to correct storage. (EC 6) E6.3.6 Does not sign back the support equipment to storage. (EC6)	Are the inspectors trained to return the support equipment and work card? Are the inspectors trained to return all the support equipment to correct storage? Are the inspectors trained to sign back the support equipment to storage?

Appendix A4

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
1.1.1 Consists information on: <ul style="list-style-type: none"> Identifying the correct document. Reading the correct information. 	6.1.5 Documented procedures 6.4 Reports and documentation		
1.1.2 Consists information on: <ul style="list-style-type: none"> tasks strategies mental models planning the appropriate task planning the appropriate strategy creating appropriate mental models 	6.1 Selection of Parameters		
1.1.3 Consists information on: <ul style="list-style-type: none"> different types of defects criticality of the defects probability of the defects location of the defects Correctly mapping the defects with criticality. Correctly mapping the defects with location. 	5.0 Employer defined applications 6.3 Classification of indications per acceptance criteria	9.0 Acceptance / Rejection criteria	

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
1.1.4 <ul style="list-style-type: none"> Consists information on starting point for search. Consists of steps on correctly choosing the starting point for search. 	6.1 Selection of Parameters		
1.1.5 <ul style="list-style-type: none"> Consists information about various search strategies. Consists information on how to choose the appropriate strategy. 	6.1 Selection of Parameters		
1.2.1, 1.2.2 <ul style="list-style-type: none"> Consists information on tools required for a particular task. Consists information on using the tools and support equipment. Consists information about the different types of mirrors, magnifying loupes and cleaning cloth. Consists information about the support equipment required for a particular task. Consists information on the substitute equipment if correct equipment not available. 	4.0 Equipment		2.0 Equipment Accessories

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
1.3.1 <ul style="list-style-type: none"> Consists information on how to check the mirror. Consists information on how to check the loupe. Consists information on how to check the cleaning cloth. 	3.3 Material Attributes 4.0 Equipment	4.0 Material Attributes	
1.3.2 <ul style="list-style-type: none"> Consists information about the support equipment (Boroscope). Consists information on how to check the support equipment (Boroscope). Consists information on how to handle the support equipment. 	3.3 Material Attributes 4.0 Equipment	4.0 Material Attributes	
2.1.1 <ul style="list-style-type: none"> Consists information on task area. Consists information on locating the correct task area. Consists information on aircraft numerical locations. Consists information on clear landmarks to help define boundaries of an inspection task. 	6.1 Selection of parameters	6.0 Visual perception	
2.2.1 <ul style="list-style-type: none"> Consists information on adequate access equipment required for performing the task. 	3.3 Material Attributes 4.0 Equipment	4.0 Material Attributes	
2.2.2 <ul style="list-style-type: none"> Consists information on how to remove the floor panels and gain access. 	3.3 Material Attributes 4.0 Equipment	4.0 Material Attributes	

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
2.2.3 <ul style="list-style-type: none"> Consists information on how to use the appropriate support equipment to reach the inspection area. 	3.3 Material Attributes 4.0 Equipment	4.0 Material Attributes	
2.2.4 <ul style="list-style-type: none"> Consists information on adequate amount of lighting required for the task. Consists information on initial possible position where body, eyes, light, mirror and loupe can be setup to view area. Consists information on comfortable body position while viewing the inspection area. Consists information on easily handling mirror, lighting and loupe together. Consists information on easily moving mirror, lighting and loupe together. Consists information on moving the support equipment when the inspector changes his position. 	3.0 Fundamentals 4.0 Equipment	3.0 Lighting 4.0 Material Attributes	1.0 Principles /theory 2.0 Equipment accessories
3.1.1 <ul style="list-style-type: none"> Consists information on how to inspect the frames and structures for cracks, corrosion, loose and missing rivets. Consists information on all the different types of defects. Consists information on the tools required to inspect the frames and structures. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/ Evaluation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
3.1.2 <ul style="list-style-type: none"> • Consists information on how to check the floor for foreign matter. • Consists information on how to check the condition of the wiring. • Consists information on how to check the insulation on the wiring. • Consists information on the tools required to check the condition of wiring and insulation on the wiring. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
3.1.3 <ul style="list-style-type: none"> Consists information on how to inspect an aircraft cable pulley. Consists information on the tools required to inspect an aircraft cable pulley. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.4 <ul style="list-style-type: none"> Consists information on how to inspect the cables. Consists information on the tools required to inspect the cables. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.5 <ul style="list-style-type: none"> Consists information on how to identify the radar cable. Consists information on how to inspect the radar cable. Consists information on the tools required to inspect the radar cable. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.6 <ul style="list-style-type: none"> Consists information on how to identify an elevator cable. Consists information on how to inspect an elevator cable. Consists information on the tools required to inspect an elevator cable. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
3.1.7 <ul style="list-style-type: none"> Consists information on how to identify an elevator trim cable. Consists information on how to inspect an elevator trim cable. Consists information on the tools required to inspect an elevator trim cable. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.8 <ul style="list-style-type: none"> Consists information on how to identify the radar trim cable. Consists information on how to inspect the radar trim cable. Consists information on the tools required to inspect the radar trim cable. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.9 <ul style="list-style-type: none"> Consists information on how to inspect the pulleys and seals. Consists information on the tools required to inspect the pulleys and seals. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.10 <ul style="list-style-type: none"> Consists information on how to inspect the rivets. Consists information on the tools required to inspect the rivets. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.15 <ul style="list-style-type: none"> Consists information on how to secure the center floorboard safely. Consists information on how to inspect the center floorboard for secure, no trash and safety. 	4.0 Equipment 6.0 Visual testing to specific procedures	4.1 Cleanliness 5.10 Position	1.2.2 Cleanliness 1.3 Test object characteristics 4.0 Interpretation/Evaluation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
3.1.16 <ul style="list-style-type: none"> Consists information on how to inspect the left rack and the floor under it. Consists information on the tools required to inspect the left rack and the floor under it. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.17 <ul style="list-style-type: none"> Consists information on how to inspect the unit that flashes the landing light. Consists information on the tools required to inspect the unit that flashes the landing light. 	4.0 Equipment 6.0 Visual testing to specific procedures	7.1 Automated Systems 7.8 Light sources and special lighting	1.3 Test object characteristics 2.6 Automated systems 4.0 Interpretation/Evaluation
3.1.18 <ul style="list-style-type: none"> Consists information on how to inspect the electrical wiring. Consists information on how to inspect the cables and pulleys for condition and safety. Consists information on the tools required to inspect the electrical wiring. Consists information on the tools required to inspect the cables and pulleys for condition and safety. 	3.5 Visual perception 4.0 Equipment 6.0 Visual testing to specific procedures	6.0 Visual perception	4.0 Interpretation/Evaluation 6.1 Electrical shock
3.1.19 <ul style="list-style-type: none"> Consists information on how to inspect the draining system. Consists information on the tools required to inspect the draining system. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.0 Environmental and Physiological factors	1.3 Test object characteristics 4.0 Interpretation/Evaluation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
3.1.20 <ul style="list-style-type: none"> Consists information on how to identify the different antennas. Consists information on how to inspect the different antennas. Consists information on the tools required to inspect the different antennas. 	3.5 Visual perception 4.0 Equipment 6.0 Visual testing to specific procedures	6.0 Visual perception	1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.21 <ul style="list-style-type: none"> Consists information on how to identify the AC unit. Consists information on how to inspect the AC unit. Consists information on the tools required to inspect the AC unit. 	3.5 Visual perception 4.0 Equipment 6.0 Visual testing to specific procedures	6.0 Visual perception 7.1 Automated systems	1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.22 <ul style="list-style-type: none"> Consists information on how to identify the AC unit that cools the different plug boxes. Consists information on how to inspect the AC unit that cools the different plug boxes. Consists information on the tools required to inspect the AC unit that cools the different plug boxes. 	3.5 Visual perception 4.0 Equipment 6.0 Visual testing to specific procedures	6.0 Visual perception 7.1 Automated systems	1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.23 <ul style="list-style-type: none"> Consists information on how to inspect the draining system. Consists information on the tools required to inspect the draining system. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.0 Environmental and Physiological factors	1.3 Test object characteristics 4.0 Interpretation/Evaluation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
3.1.24 <ul style="list-style-type: none"> Consists information on how to identify the flap motor and gearbox. Consists information on how to inspect the flap motor and gearbox. Consists information on the tools required to inspect the flap motor and gearbox. 	3.5 Visual perception 4.0 Equipment 6.0 Visual testing to specific procedures	6.0 Visual perception 7.1 Automated systems	1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.25 <ul style="list-style-type: none"> Consists information on how to identify an aileron servo. Consists information on how to inspect an aileron servo. Consists information on the tools required to inspect an aileron servo. 	3.5 Visual perception 4.0 Equipment 6.0 Visual testing to specific procedures	6.0 Visual perception 7.1 Automated systems	1.3 Test object characteristics 4.0 Interpretation/Evaluation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
3.1.26 <ul style="list-style-type: none"> Consists information on how to inspect the structure. Consists information on how to inspect the insulation on AC lines. Consists information on how to inspect the screws. Consists information on how to inspect the wiring, tubes, lines and relays. Consists information on the tools required to inspect the structure. Consists information on the tools required to inspect the insulation on AC lines. Consists information on the tools required to inspect the screws. Consists information on the tools required to inspect the wiring, tubes, lines and relays. 	3.3 Material attributes 3.5 Visual perception 4.0 Equipment 6.0 Visual testing to specific procedures	4.0 Material attributes 6.0 Visual perception 7.1 Automated systems	1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.27 <ul style="list-style-type: none"> Consists information on how to identify the pneumatic switch. Consists information on how to inspect the pneumatic switch. Consists information on the tools required to inspect the pneumatic switch. Consists information on how to identify the pressure switch. Consists information on how to inspect the pressure switch. Consists information on the tools required to inspect the pressure switch. 	3.3 Material attributes 3.5 Visual perception 4.0 Equipment 6.0 Visual testing to specific procedures	4.0 Material attributes 6.0 Visual perception 7.1 Automated systems	4.0 Interpretation/Evaluation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
3.1.28 <ul style="list-style-type: none"> Consists information on how to identify the safety valve. Consists information on how to inspect the safety valve. Consists information on the tools required to inspect the safety valve. 	3.3 Material attributes 3.5 Visual perception 4.0 Equipment 6.0 Visual testing to specific procedures	4.0 Material attributes 6.0 Visual perception 7.1 Automated systems	4.0 Interpretation/Evaluation
3.1.29 <ul style="list-style-type: none"> Consists information on how to identify the servo capstan adjustment. Consists information on how to inspect the servo capstan adjustment. Consists information on the tools required to inspect the servo capstan adjustment. 	3.3 Material attributes 3.5 Visual perception 4.0 Equipment 6.0 Visual testing to specific procedures	4.0 Material attributes 6.0 Visual perception 7.1 Automated systems	4.0 Interpretation/Evaluation
3.1.30 <ul style="list-style-type: none"> Consists information on how to identify the outflow and overflow valve. Consists information on how to inspect the outflow and overflow valve. Consists information on the tools required to inspect the outflow and overflow valve. 	3.3 Material attributes 3.5 Visual perception 4.0 Equipment 6.0 Visual testing to specific procedures	4.0 Material attributes 6.0 Visual perception 7.1 Automated systems	4.0 Interpretation/Evaluation
3.1.31 <ul style="list-style-type: none"> Consists information on contrast between an indication and background. Consists information on peripheral visual acuity. Consists information on sufficient fixation time required to detect a target. Consists information on expected indications in a particular part of a structure. 	3.2 Lighting 3.5 Visual perception 6.3 Classification of indications per acceptance criteria	3.0 Lighting 6.0 Visual perception 9.0 Acceptance/Rejection criteria	1.1 Vision and light 1.3 Test object characteristics

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
3.2.1 <ul style="list-style-type: none"> Consists information on maintaining situational awareness as FOV moves. Consists information on adequate magnification needed to cover whole inspection area. Consists information on moving FOV to all positions. Consists information on scan path required to cover complete FOV. 	3.5 Visual perception 6.0 Visual testing to specific procedures	6.0 Visual perception	1.1 Vision and light
3.3.1 <ul style="list-style-type: none"> Consists information on path to be followed by inspector to move FOV's over inspection area. Consists information on complete coverage. Consists information on sufficient time required for reliable search. 	3.5 Visual perception 6.0 Visual testing to specific procedures	6.0 Visual perception	1.1 Vision and light

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
4.1 <ul style="list-style-type: none"> Consists information on identifying the various types of indications. Consists information on correctly mapping the defect with area. Consists information on indications under special scrutiny. Consists information on experience required to be familiar with all indication types. Consists information on prototypical information with work cards. Consists information on correct quality and quantity of lighting required to ensure adequate recognition of indication. Consists information on correct terminologies used for each indication types listed in work card. Consists information on size or severity or severity level rejectable for a particular class of indication. 	2.0 Definitions 3.2 Lighting 3.5 Visual perception 6.1 Selection of parameters 6.3 Classification of indications per acceptance criteria 6.4 Reports and documentation	3.0 Lighting 6.0 Visual perception 9.0 Acceptance/Rejection criteria 10.0 Recording and reports	1.1 Vision and light 1.3 Test object characteristics 4.3 Discontinuity variables affecting test results 4.6 Process for reporting visual discontinuities

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
4.2 <ul style="list-style-type: none"> Consists information on equipments required to measure indication area. Consists information on how to measure the indication area. Consists information on landmarks and work card. Consists information on locating and recognizing correct landmarks. Consists information on measuring graticule. Consists information on units on graticule and those specified in work card. 	4.0 Equipment 6.1.5 Documented procedures 6.3 Classification of indications per acceptance criteria 6.4 Reports and documentation	7.0 Equipment 9.0 Acceptance/ Rejection criteria 10.0 Recording and reports	2.0 Equipment accessories 2.3 Linear measurement 4.4 Determination of dimensions 4.6 Process for reporting visual discontinuities 5.0 Procedures and documentation
4.3 <ul style="list-style-type: none"> Consists information about correct standards. Consists information on how to compare the indication with the standards. Consists information on physical comparison to standards. 	6.2 Test standards/ calibration	9.0 Acceptance/ Rejection criteria	3.9 Requirements

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
5.1 <ul style="list-style-type: none"> Consists information on correctly mapping the location with the defect. Consists information on how to check the defect location appropriately. Consists information on numerical location of data on work card. 	5.0 Employer defined applications 6.0 Visual testing to specific procedures 6.3 Classification of indications per acceptance criteria	9.0 Acceptance / Rejection criteria	5.0 Procedures and documentation
5.2 <ul style="list-style-type: none"> Consists information on equipments required to record defect location. Consists information on how to record the defect location appropriately. 	4.0 Equipment	7. 0 Equipment	2.0 Equipment accessories
5.3 <ul style="list-style-type: none"> Consists information about various defect types. Consists information about how to record the defect type. Consists information on how to comment about defect type. 	4.0 Equipment 6.0 Visual testing to specific procedures 6.4 Reports and documentation	10.0 Recording and reports	1.3 Test object characteristics 4.0 Interpretation/ Evaluation 5.0 Procedures and documentation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
5.4 <ul style="list-style-type: none"> Consists information on how to make a final decision. Consists information about various types of final decisions made for various types of indications. Consists information on the difference between an indication and a standard clearly beyond acceptance limit. 	6.2 Test standards and calibration 6.3 Classification of indications per acceptance criteria	9.0 Acceptance / Rejection criteria	5.0 Procedures and documentation
5.4.1 <ul style="list-style-type: none"> Consists information on how to sign off a work card. 	6.4 Reports and documentation	10.0 Recording and reports	5.0 Procedures and documentation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
6.1 <ul style="list-style-type: none"> Consists information about how to remove equipments and supplies from inspection area. Consists information on checklist of equipment and supplies to ensure nothing is left in the inspection area. 	4.0 Equipment	7.0 Equipment	2.0 Equipment accessories
6.2 <ul style="list-style-type: none"> Consists information on cleaning the equipment correctly. Consists information on correct cleaning material required. Consists information on training inspectors on correct cleaning procedures. 	3.4 Environmental factors	5.2 Cleanliness	1.2.2 Cleanliness 5.0 Procedures and documentation
6.3 <ul style="list-style-type: none"> Consists information on the correct procedure to return the equipment. Consists information on the correct place to return the equipment. Consists information on how to safely move the support equipment. Consists information on the procedure for safety check of equipment prior to storage. Consists information on signing in and out the equipment correctly. 	3.3 Material attributes	4.0 Material attributes	5.0 Procedures and documentation

Appendix B1

TASK DESCRIPTION	Task Analysis								OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O		
1.0 INITIATE INSPECTION										
<i>1.1 Use Documentation to Plan Task</i>										
1.1.1 Read Documentation	X	X			X				Skipped this step.	Consists information on: <ul style="list-style-type: none"> Identifying the correct document. Reading the correct information.
1.1.2 Plan task, strategy and mental model	X	X			X				Planned the task appropriately. Planned the search strategy. Created an appropriate mental model.	Consists information on: <ul style="list-style-type: none"> tasks strategies mental models planning the appropriate task planning the appropriate strategy creating appropriate mental models
1.1.3 Learn type, criticality, probability, location of defects	X	X			X				Skipped this step	Consists information on: <ul style="list-style-type: none"> different types of defects criticality of the defects probability of the defects location of the defects correctly mapping the defects with criticality. correctly mapping the defects with location.
1.1.4 Choose starting points for search	X	X			X				Started search without following any steps prescribed in the work card.	Consists information on starting point for search. Consists of steps on correctly choosing the starting point for search.
A: Attention S: Senses P: Perception D: Decision Making M: Memory C: Control F: Feedback O: Others										

	Task Analysis										
TASK DESCRIPTION	A	S	P	D	M	C	F	O	OBSERVATIONS	CONTENT	
1.1.5 Choose search strategy	X	X			X				Did not use any specific instrument to search for defects. Did not have the work card. Did not follow the order prescribed in the work card.	Consists information about various search strategies. Consists information on how to choose the appropriate strategy.	
1.2 Assemble Equipment											
1.2.1 Collect supplies, lighting	X	X			X				Collected the supplies and lightling. Did not have the work card. Did not follow the order prescribed in the work card.	Consists information on tools required for a particular task. Consists information on using the tools and support equipment.	
1.2.2 Collect support equipment	X	X			X				Collected the support equipment. Did not have the work card. Did not follow the order prescribed in the work card.	Consists information about the mirror, magnifying loupe and cleaning cloth. Consists information on how to collect an appropriate mirror. Consists information on how to collect an appropriate magnifying loupe. Consists information on how to collect a cleaning cloth. Consists information about the support equipment required for a particular task. Consists information on substitute equipment if correct equipment is not available.	

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
1.3 Test, Calibrate Equipment											
1.3.1 Check mirror, loupe, cleaning cloth	X	X			X					Skipped this step.	Consists information on how to check the mirror. Consists information on how to check the loupe. Consists information on how to check the cleaning cloth.
1.3.2 Check support equipment	X	X			X					Skipped this step.	Consists information about the support equipment (Boroscope). Consists information on how to check the support equipment (Boroscope). Consists information on how to handle the support equipment.
2.0 ACCESS INSPECTION TASK											
2.1 Locate Task Area	X	X			X						
2.1.1 Locate task area near the landing gear.	X	X			X					Located the task area near the landing gear. Did not have the work card. Did not follow the order prescribed in the work card.	Consists information on task area. Consists information on locating the correct task area. Consists information on aircraft numerical locations. Consists information on clear landmarks to help define boundaries of an inspection task.

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
2.2 Access Inspection Area											
2.2.1 Move support equipment into place	X	X			X					Moved the equipment into place. Did not have the work card. Did not follow the order prescribed in the work card.	Consists information on adequate access equipment required for performing the task. Consists information on how to move the support equipment to an appropriate place.
2.2.2 Removes the wheel fairings and brake fairings to gain access to the inspection area								X		Removed the wheel fairings and brake fairings.	Consists information on how to remove the wheel fairings and brake fairings, and gain access.
2.2.3 Use support equipment to reach inspection area											Consists information on how to use appropriate support equipment to reach the inspection area.
2.2.4 Move body, eyes, light, mirror and loupe as needed to cover area	X	X			X					Moved body and eyes to cover the area.	Consists information on adequate amount of lighting required for the task. Consists information on initial possible position where body, eyes, light, mirror and loupe can be setup to view area. Consists information on comfortable body position while viewing the inspection area. Consists information on easily handling the mirror, lighting and loupe together. Consists information on easily moving the mirror, lighting and loupe together. Consists information on moving the support equipment when the inspector changes his position.
A: Attention S: Senses P: Perception D: Decision Making M: Memory C: Control F: Feedback O: Others											

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
3.0 SEARCH FOR INDICATIONS											
3.1 Search by Fixation in Field of View											
3.1.1 Check the main landing gear fairings and brake fairings for cracks, dents, and condition of paint.	X	X			X					Checked the landing gear fairings and brake fairings for cracks, dents, and condition of paint. Did not have the work card. Did not follow the order prescribed in the work card.	Consists information on how to check the main landing gear fairings and break fairings. Consists information on the different types of defects. Consists information on the tools required to inspect the main landing gear fairings and break fairings.
3.1.2 Inspect the main gear spring assemblies for cracks, dents, corrosion, condition of paint or other damage.										Skipped this step.	Consists information on how to inspect the main gear spring assemblies. Consists information on the different types of defects. Consists information on the tools required to inspect the main gear spring assemblies.
3.1.3 Check axles for condition and security.	X	X			X					Checked axles for condition and security. Did not have the work card. Did not follow the order prescribed in the work card.	Consists information on how to check axles for condition and security. Consists information on the tools required to check axles.

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
3.1.4 Check the main landing gear attachment structure for damage, cracks, loose rivets, bolts and nuts and security of attachment.	X	X			X					Checked the main landing gear attachment structure for damage, cracks, loose rivets, bolts and nuts and security of attachment. Did not have the work card. Did not follow the order prescribed in the work card.	Consists information on how to check the main landing gear attachment structure. Consists information on the tools required to check the main landing gear attachment structure. Consists information on damage, cracks, loose rivets, bolts and nuts and security of attachment.
3.1.5 Nose Gear – Inspect torque links, steering rods, and boots for condition and security of attachment.	X		X		X					Inspected torque links, steering rods, and boots for condition and security of attachment. Did not have the work card. Did not follow the order prescribed in the work card.	Consists information on how to inspect torque links, steering rods, and boots. Consists information on the tools required to inspect torque links, steering rods, and boots. Consists information on torque links, steering rods, and boots.
A: Attention S: Senses P: Perception D: Decision Making M: Memory C: Control F: Feedback O: Others											

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
3.1.6 Check strut barrel for corrosion, pitting and cleanliness.										Skipped this step.	Consists information on how to check strut barrel. Consists information on the tools required to check strut barrel. Consists information on the different types of defects.
3.1.7 Check shimmy damper and/or bungees for operation, leakage, and attach points for wear and security.										Skipped this step.	Consists information on how to check shimmy damper and/or bungees and attach points. Consists information on the tools required to check shimmy damper and/or bungees and attach points. Consists information on shimmy damper and/or bungees, and attach points. Consists information on the different types of defects.

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
3.1.8 Check the nose landing gear wheel fairings for cracks, dents, and condition of paint.	X	X			X					Checked the nose landing gear wheel fairings for cracks, dents, and condition of paint. Did not have the work card. Did not follow the order prescribed in the work card.	Consists information on how to check the nose landing gear wheel fairings. Consists information on the tools required to check the nose landing gear wheel fairings. Consists information on the different types of defects.
3.1.9 Inspect the nose gear fork for cracks, general condition, and security of attachment.	X	X	X		X					Inspected the nose gear fork for cracks, general condition, and security of attachment. Did not have the work card. Did not follow the order prescribed in the work card.	Consists information on how to inspect the nose gear fork. Consists information on the tools required to inspect the nose gear fork. Consists information on the different types of defects.
3.1.10 Inspect the nose gear attachment structure for cracks, or other damage and security of attachment.	X	X	X		X					Inspected the nose gear attachment structure for cracks, or other damage and security of attachment. Did not have the work card. Did not follow the order prescribed in the work card.	Consists information on how to inspect the nose gear attachment structure. Consists information on the tools required to inspect the nose gear attachment structure. Consists information on the different types of defects.
3.1.11 Test toe brakes and parking brake for proper operation.										Skipped this step.	Consists information on how to test toe brakes and parking brake. Consists information on the tools required to test toe brakes and parking brake.
3.1.12 Check the master cylinder and parking brake mechanism for condition and security.	X	X			X					Skipped the master cylinder, but checked the parking brake for condition and security. Did not have the work card. Did not follow the order prescribed in the work card.	Consists information on how to check the master cylinder and parking brake mechanism. Consists information on the tools required to check the master cylinder and parking brake mechanism.

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

TASK DESCRIPTION	A	S	P	D	M	C	F	O	OBSERVATIONS	CONTENT
3.1.13 Check the fluid level and test operation of toe and parking brake. Refer to Chapter 12-13-00 for servicing instructions.									Skipped this step. Did not refer to chapter 12-13-00.	Consists information on how to check the fluid level and test operation of toe and parking brake. Consists information on the tools required to check the fluid level and test operation of toe and parking brake.
3.1.14 Check the brake lines, wheel cylinders, hoses, clamps, and fittings for leaks, condition, and security and hoses for bulges and deterioration.	X	X			X				Checked the brake lines, wheel cylinders, hoses, clamps, and fittings for leaks, condition, and security and hoses for bulges and deterioration. Did not have the work card. Did not follow the order prescribed in the work card.	Consists information on how to check the brake lines, wheel cylinders, hoses, clamps, fittings and hoses. Consists information on the tools required to check the brake lines, wheel cylinders, hoses, clamps, fittings and hoses. Consists information on the different types of defects.
3.1.15 Check brake lines and hoses for proper routing and support.									Skipped this step.	Consists information on how to check brake lines and hoses. Consists information on the tools required to check brake lines and hoses.
3.1.16 Check tread wear and general condition of the tires.	X	X			X				Checked tread wear and general condition of the tires. Did not have the work card. Did not follow the order prescribed in the work card.	Consists information on how to check tread wear and general condition of the tires. Consists information on the tools required to check tread wear and general condition of the tires.

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
3.1.17 Check for proper inflation.										Skipped this step.	Consists information on how to check for proper inflation. Consists information on the tools required to check for proper inflation.
3.1.18 Inspect the wheels, brake discs, and linings for wear, cracks, warps, dents, or other damage.	X		X		X					Inspected the wheels, brake discs, and linings for wear, cracks, warps, dents, or other damage. Did not have the work card. Did not follow the order prescribed in the work card.	Consists information on how to inspect the wheels, brake discs, and linings. Consists information on the tools required to inspect the wheels, brake discs, and linings. Consists information on the different types of defects.
3.1.19 Check wheel through-bolts and nuts for looseness.	X	X			X					Checked wheel through-bolts and nuts for looseness. Did not have the work card. Did not follow the order prescribed in the work card.	Consists information on how to check wheel through-bolts and nuts for looseness. Consists information on the tools required to check wheel through-bolts and nuts for looseness.

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

	Task Analysis										
TASK DESCRIPTION	A	S	P	D	M	C	F	O	OBSERVATIONS	CONTENT	
3.1.20 Clean, inspect and lube the wheel bearings.	X	X	X		X		X		Cleaned, inspected and lubed the wheel bearings. Was not confident of the type of grease. Applied grease with hand. Did not know what solution was used to clean the bearings. Did not have the work card. Did not follow the order prescribed in the work card.	Consists information on how to clean, inspect and lube the wheel bearings. Consists information on the tools required to clean, inspect and lube the wheel bearings.	
3.1.21 Check the nose gear steering mechanism for wear, security, and proper rigging.									Skipped this step.	Consists information on how to check the nose gear steering mechanism. Consists information on the tools required to check the nose gear steering mechanism. Consists information on wear, security, and proper rigging.	

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
4.0 DECISION ON INDICATION											
4.1 Identify Indication Type											Consists information on identifying the various types of indications. Consists information on correctly mapping the defect with area. Consists information on indications under special scrutiny. Consists information on experience required to be familiar with all indication types. Consists information on prototypical information with work cards. Consists information on the correct quality and quantity of lighting required to ensure adequate recognition of indication. Consists information on correct terminologies used for each indication types listed in work card. Consists information on size or severity or severity level rejectable for a particular class of indication.

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
4.2 Measure Indication Size											Consists information on equipments required to measure indication area. Consists information on how to measure the indication area. Consists information on landmarks and work card. Consists information on locating and recognizing correct landmarks. Consists information on measuring graticule. Consists information on units on graticule and those specified in work card.
4.3 Compare Indication to Standard											Consists information about correct standards. Consists information on how to compare the indication with the standards. Consists information on physical comparison to standards.

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
5.0 RESPOND TO INSPECTION											
5.1 Check Defect Location											Consists information on correctly mapping the location with the defect. Consists information on how to check the defect location appropriately. Consists information on numerical location of data on work card.
5.2 Record Defect Location											Consists information on equipments required to record defect location. Consists information on how to record the defect location appropriately.
5.3 Record Defect Type, Comments											Consists information about various defect types. Consists information about how to record the defect type. Consists information on how to comment about defect type.
5.4 Final Decision											Consists information on how to make a final decision. Consists information about various types of final decisions made for various types of indications. Consists information on the difference between an indication and a standard clearly beyond acceptance limit.
5.4.1 Sign off the work card.											Consists information on how to sign off a work card.

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

	Task Analysis										
TASK DESCRIPTION	A	S	P	D	M	C	F	O	OBSERVATIONS	CONTENT	
6.0 RETURN EQUIPMENT TO STORAGE											
6.1 Remove Equipment, Supplies from Inspection Area										Consists information about how to remove equipments and supplies from inspection area. Consists information on the checklist of equipment and supplies to ensure nothing is left in the inspection area.	
6.2 Clean Equipment										Consists information on cleaning the equipment correctly. Consists information on correct cleaning material required. Consists information on training inspectors on correct cleaning procedures.	
6.3 Return Support Equipment to Storage										Consists information on the correct procedure to return the equipment. Consists information on the correct place to return the equipment. Consists information on how to safely move the support equipment. Consists information on the procedure for safety check of equipment prior to storage. Consists information on signing in and out the equipment correctly.	

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

Appendix B2

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.0 INITIATE INSPECTION			
<i>1.1 Use Documentation to Plan Task</i>			
1.1.1 Read Documentation	E1.1.1.1 Does not have the correct documentation (EC1). E1.1.1.2 Does not have the documentation (EC 1). E1.1.1.3 Does read the document incorrectly (EC 6). E1.1.1.4 Does not know how to read the document (EC 5). E1.1.1.5 Does not interpret the document correctly (EC 3).	Does know to locate, read and interpret the correct documentation.	Are the inspectors trained to locate the correct documentation? Are the inspectors trained to read and interpret the correct documentation?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.1.2 Plan task, strategy and mental model	<p>E1.1.2.1 Does not plan the task (EC 4).</p> <p>E1.1.2.2 Does plan the task incorrectly (EC 4).</p> <p>E1.1.2.3 Does not plan the correct task (EC 4).</p> <p>E1.1.2.4 Does not plan the strategy (EC 4).</p> <p>E1.1.2.5 Does plan the strategy incorrectly (EC 4).</p> <p>E1.1.2.6 Does not plan the correct strategy (EC 4).</p> <p>E1.1.2.7 Does not create a mental model (EC 2).</p> <p>E1.1.2.8 Created a wrong mental model (EC 2).</p> <p>E1.1.2.9 Created a mental model irrelevant to task and strategy (EC 2).</p> <p>E1.1.2.10 Does not know to create a mental model (EC 2).</p>	<p>Does plan the correct task.</p> <p>Does plan the correct strategy.</p> <p>Does form the correct mental model.</p>	<p>Are the inspectors trained to plan the correct task?</p> <p>Are the inspectors trained to plan the correct strategy?</p> <p>Are the inspectors trained to form the correct mental model?</p>

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.1.3 Learn type, criticality, probability, location of defects	<p>E1.1.3.1 Does not know about the different types of defects (EC 1).</p> <p>E1.1.3.2 Does not know all the defects (EC 1).</p> <p>E1.1.3.3 Does not know about the criticality of defects (EC 1).</p> <p>E1.1.3.4 Incorrectly maps the defects with criticality (EC 1).</p> <p>E1.1.3.5 Does not know how often the defects occur (EC 1).</p> <p>E1.1.3.6 Does not know about the location of the defects (EC 1).</p> <p>E1.1.3.7 Incorrectly maps the defects with location (EC 1).</p>	<p>Does know about the different type of defects.</p> <p>Does know the correct mapping of the defects with criticality.</p> <p>Does know the probability of occurrence of defects.</p> <p>Does know the correct location of the defects.</p>	<p>Are the inspectors trained to detect the different types of defects?</p> <p>Are the inspectors trained to map the defects with criticality?</p> <p>Are the inspectors trained to gauge the defect occurrence probability?</p> <p>Are the inspectors trained to locate the defects correctly?</p>
1.1.4 Choose starting points for search	<p>E1.1.4.1 Does not know to select the starting point for search (EC 1).</p> <p>E1.1.4.2 Does not know the starting point for the search (EC 1).</p> <p>E1.1.4.3 Select the wrong starting point for search (EC 6).</p>	<p>Does know the correct starting point for search.</p>	<p>Are the inspectors well versed with how to start a search?</p>

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.1.5 Choose search strategy	<p>E1.1.5.1 Does not know what a search strategy is (EC 1).</p> <p>E1.1.5.2 Does not know to select a search strategy (EC 1).</p> <p>E1.1.5.3 Select the wrong search strategy (EC 6).</p>	Does know the correct search strategy.	Are the inspectors trained to form the correct search strategy?
<i>1.2 Assemble Equipment</i>			
1.2.1 Collect supplies, lighting			
1.2.1.1 Collect mirror	<p>E1.2.1.1.1 Does not collect the mirror (EC 1).</p> <p>E1.2.1.1.2 Does collect the faulty mirror (EC 6).</p>	Does know to collect the appropriate mirror.	Are the inspectors trained to collect the mirror?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.2.1.2 Collect magnifying loupe	<p>E1.2.1.2.1 Does not collect the magnifying loupe (EC 1).</p> <p>E1.2.1.2.2 Does collect the faulty magnifying loupe (EC 6).</p>	Does know to collect the appropriate magnifying loupe.	Are the inspectors trained to collect the magnifying loupe?
1.2.1.3 Collect cleaning cloth	E1.2.1.3.1 Does not collect the cleaning cloth (EC 1).	Does know to collect the appropriate magnifying loupe.	Are the inspectors trained to collect the cleaning cloth?
1.2.1.4 Collect measuring equipment	<p>E1.2.1.4.1 Does not collect the measuring equipment (EC 1).</p> <p>E1.2.1.4.2 Does collect the faulty measuring equipment (EC 6).</p>	Does know to collect the appropriate magnifying loupe.	Are the inspectors trained to collect the measuring equipment?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.2.1.5 Collect support equipment	<p>E1.2.1.5.1 Does not collect the support equipment (EC 1).</p> <p>E1.2.1.5.2 Does collect the faulty support equipment (EC 6).</p>	Does know to collect the appropriate magnifying loupe.	Are the inspectors trained to collect the support equipment?
1.2.1.6 Move the workbench closer to the aircraft.	<p>E1.2.1.6.1 Does not know how to move the workbench closer to the aircraft (EC 1).</p> <p>E1.2.1.6.2 Does not move the workbench closer to the aircraft (EC 6).</p>	Does move the workbench closer to the aircraft.	Are the inspectors trained on moving the support equipment closer to the aircraft?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
<i>1.3 Test, Calibrate Equipment</i>			
1.3.1 Check mirror, loupe, cleaning cloth	<p>E1.3.1.1 Does not know how to check mirror (EC 1).</p> <p>E1.3.1.2 Does not check the mirror (EC 1).</p> <p>E1.3.1.3 Does check the mirror incorrectly (EC 6).</p> <p>E1.3.1.4 Does not know how to check loupe (EC 1).</p> <p>E1.3.1.5 Does not check the loupe (EC 1).</p> <p>E1.3.1.6 Does check the loupe incorrectly (EC 6).</p> <p>E1.3.1.7 Does not know how to check cleaning cloth (EC 1).</p> <p>E1.3.1.8 Does not check the cleaning cloth (EC 1).</p> <p>E1.3.1.9 Does check the cleaning cloth incorrectly (EC 6).</p>	<p>Does know how to check the mirror.</p> <p>Does know how to check the loupe.</p> <p>Does know how to check the cleaning cloth.</p>	<p>Are the inspectors trained to check the mirror correctly?</p> <p>Are the inspectors trained to check the loupe correctly?</p> <p>Are the inspectors trained to check the cleaning cloth correctly?</p>

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.3.2 Check support equipment (Boroscope)	<p>E1.3.2.1 Does not know how to check support equipment (Boroscope) (EC 1).</p> <p>E1.3.2.2 Does not check the support equipment (Boroscope) (EC 1).</p> <p>E1.3.2.3 Does check the support equipment (Boroscope) incorrectly (EC 6).</p>	Does know how to check the support equipment (Boroscope).	Are the inspectors trained to check the support equipment correctly?
2.0 ACCESS INSPECTION TASK			
<i>2.1 Locate Task Area</i>			

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
2.1.1 Locate task area near the landing gear.	<p>E2.1.1.1 Does not know how to locate task area near the landing gear (EC 5).</p> <p>E2.1.1.2 Does not locate the task area near the landing gear (EC 6).</p> <p>E2.1.1.3 Does locate the wrong task area near the landing gear (EC 6).</p>	Does locate the correct task area near the landing gear.	Are the inspectors trained in locating the task area near the landing gear correctly?
2.2 Access Inspection Area			

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
2.2.1 Move support equipment into place	<p>E2.2.1.1 Does not know how to move support equipment into place (EC 5).</p> <p>E2.2.1.2 Does not move support equipment into place (EC 6).</p> <p>E2.2.1.3 Does move the support equipment into inappropriate place (EC 6).</p>	Does move the support equipment into correct place.	Are the inspectors trained on handling the support equipment correctly?
2.2.2 Removes the wheel fairings and brake fairings to gain access to the inspection area.	<p>E2.2.2.1 Does not know how to remove the wheel and brake fairings (EC 5).</p> <p>E2.2.2.2 Does not remove the wheel and brake fairings (EC 6).</p>	Does remove the wheel fairings and brake fairings to gain access to the inspection area.	Are the inspectors trained on how to gain access to the different areas for inspection by removing the floor panels?
2.2.3 Use support equipment to reach inspection area	<p>E2.2.3.1 Does not know how to use support equipment to reach inspection area (EC 5).</p> <p>E2.2.3.2 Does not use the support equipment to reach inspection area (EC 6).</p> <p>E2.2.3.3 Does use the wrong support equipment to reach inspection area (EC 6).</p>	Does use the correct support equipment to reach inspection area.	Are the inspectors trained on using the support equipment to reach inspection area?
2.2.4 Move body, eyes, light, mirror and loupe as needed to cover area		Does move body, eyes, light, mirror and loupe as needed to cover area.	Are the inspectors trained on how to position themselves while inspecting a particular area?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.0 SEARCH FOR INDICATIONS			
<i>3.1 Search by Fixation in Field of View</i>			
3.1.1 Check the main landing gear fairings and brake fairings for cracks, dents, and condition of paint.	<p>E3.1.1.1 Does not know how to check the main landing gear fairings and brake fairings for cracks, dents, and condition of paint (EC 1).</p> <p>E3.1.1.2 Does not know how to identify the cracks, dents, and condition of paint (EC 1).</p> <p>E3.1.1.3 Does not bring the correct tools or other equipments to inspect the cracks, dents, and condition of paint (EC 6).</p> <p>E3.1.1.4 Does not inspect the main landing gear fairings and brake fairings for cracks, dents, and condition of paint (EC 1).</p>	Does inspect the main landing gear fairings and brake fairings for cracks, dents, and condition of paint.	Are the inspectors trained on detecting the main landing gear fairings and brake fairings for cracks, dents, and condition of paint?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.2 Inspect the main gear spring assemblies for cracks, dents, corrosion, condition of paint or other damage.	<p>E3.1.2.1 Does not know how to inspect the main gear spring assemblies for cracks, dents, corrosion, condition of paint or other damage (EC 1).</p> <p>E3.1.2.2 Does not bring the correct equipments and tools for the inspection of the main gear spring assemblies for cracks, dents, corrosion, condition of paint or other damage (EC 5).</p> <p>E3.1.2.3 Does not inspect the main gear spring assemblies for cracks, dents, corrosion, condition of paint or other damage (EC 1).</p>	Does inspect the main gear spring assemblies for cracks, dents, corrosion, condition of paint or other damage.	Are the inspectors trained on identifying cracks, dents, corrosion, condition of paint or other damage on the main gear spring assemblies?
3.1.3 Check axles for condition and security.	<p>E3.1.3.1 Does not know how to inspect axles for condition and security (EC 1).</p> <p>E3.1.3.2 Does not bring the correct tools to inspect the axles (EC 5).</p> <p>E3.1.3.3 Does not inspect the axles for condition and security (EC 6).</p>	Does inspect axles for condition and security.	Are the inspectors trained on how to inspect axles for condition and security?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.4 Check the main landing gear attachment structure for damage, cracks, loose rivets, bolts and nuts and security of attachment.	<p>E3.1.4.1 Does not know how to inspect the main landing gear attachment structure for damage, cracks, loose rivets, bolts and nuts and security of attachment (EC 1).</p> <p>E3.1.4.2 Does not bring the correct tools or equipments to inspect the main landing gear attachment structure for damage, cracks, loose rivets, bolts and nuts and security of attachment (EC 5).</p> <p>E3.1.4.3 Does not inspect the main landing gear attachment structure for damage, cracks, loose rivets, bolts and nuts and security of attachment (EC 6).</p>	Does inspect the main landing gear attachment structure for damage, cracks, loose rivets, bolts and nuts and security of attachment.	Are the inspectors trained on inspecting the main landing gear attachment structure for damage, cracks, loose rivets, bolts and nuts and security of attachment?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
<p>3.1.5 Nose Gear – Inspect torque links, steering rods, and boots for condition and security of attachment.</p>	<p>E3.1.5.1 Does not know how to inspect torque links, steering rods, and boots for condition and security of attachment on a nose gear (EC 1).</p> <p>E3.1.5.2 Does not bring the correct tools or equipments to inspect the inspect torque links, steering rods, and boots for condition and security of attachment (EC 5).</p> <p>E3.1.5.3 Does not Inspect torque links, steering rods, and boots for condition and security of attachment (EC 6).</p>	<p>Does inspect torque links, steering rods, and boots for condition and security of attachment.</p>	<p>Are the inspectors trained on how to inspect torque links, steering rods, and boots for condition and security of attachment?</p>
<p>3.1.6 Check strut barrel for corrosion, pitting and cleanliness.</p>	<p>E3.1.6.1 Does not know how to inspect the strut barrel for corrosion, pitting and cleanliness (EC 1).</p> <p>E3.1.6.2 Does not bring the correct tools to inspect the strut barrel for corrosion, pitting and cleanliness (EC 5).</p> <p>E3.1.6.3 Does not inspect the strut barrel for corrosion, pitting and cleanliness (EC 6).</p>	<p>Does inspect strut barrel for corrosion, pitting and cleanliness.</p>	<p>Are the inspectors trained on how to inspect the strut barrel for corrosion, pitting and cleanliness?</p>

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.7 Check shimmy damper and/or bungees for operation, leakage, and attach points for wear and security.	<p>E3.1.7.1 Does not know how to inspect shimmy damper and/or bungees for operation, leakage, and attach points for wear and security (EC 1).</p> <p>E3.1.7.2 Does not bring the correct tools to inspect the shimmy damper and/or bungees for operation, leakage, and attach points for wear and security (EC 5).</p> <p>E3.1.7.3 Does not inspect the shimmy damper and/or bungees for operation, leakage, and attach points for wear and security (EC 6).</p>	Does inspect the shimmy damper and/or bungees for operation, leakage, and attach points for wear and security.	Are the inspectors trained on how to inspect the shimmy damper and/or bungees for operation, leakage, and attach points for wear and security?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.8 Check the nose landing gear wheel fairings for cracks, dents, and condition of paint.	<p>E3.1.8.1 Does not know how to inspect the nose landing gear wheel fairings for cracks, dents, and condition of paint (EC 1).</p> <p>E3.1.8.2 Does not bring the correct tools to inspect the nose landing gear wheel fairings for cracks, dents, and condition of paint (EC 5).</p> <p>E3.1.8.3 Does not inspect nose landing gear wheel fairings for cracks, dents, and condition of paint (EC 6).</p>	Does inspect the nose landing gear wheel fairings for cracks, dents, and condition of paint.	Are the inspectors trained on how to inspect the nose landing gear wheel fairings for cracks, dents, and condition of paint?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.9 Inspect the nose gear fork for cracks, general condition, and security of attachment.	<p>E3.1.9.1 Does not know how to inspect the nose gear fork for cracks, general condition, and security of attachment (EC 1).</p> <p>E3.1.9.2 Does not bring the correct tools to inspect the nose gear fork for cracks, general condition, and security of attachment (EC 5).</p> <p>E3.1.9.3 Does not inspect the nose gear fork for cracks, general condition, and security of attachment (EC 6).</p>	Does inspect the nose gear fork for cracks, general condition, and security of attachment	Are the inspectors trained on how to inspect the nose gear fork for cracks, general condition, and security of attachment?
3.1.10 Inspect the nose gear attachment structure for cracks, or other damage and security of attachment.	<p>E3.1.10.1 Does not know how to inspect the nose gear attachment structure for cracks, or other damage and security of attachment (EC 1).</p> <p>E3.1.10.2 Does not bring the correct tools to inspect the nose gear attachment structure for cracks, or other damage and security of attachment (EC 5).</p> <p>E3.1.10.3 Does not inspect the nose gear attachment structure for cracks, or other damage and security of attachment (EC 6).</p>	Does inspect the nose gear attachment structure for cracks, or other damage and security of attachment.	Are the inspectors trained on how to inspect the nose gear attachment structure for cracks, or other damage and security of attachment?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.11 Test toe brakes and parking brake for proper operation.	<p>E3.1.11.1 Does not know how to test toe brakes and parking brake for proper operation (EC 1).</p> <p>E3.1.11.2 Does not bring the correct for testing toe brakes and parking brake for proper operation (EC 5).</p> <p>E3.1.11.3 Does not test toe brakes and parking brake for proper operation (EC 6).</p>	Does test toe brakes and parking brake for proper operation.	Are the inspectors trained on testing toe brakes and parking brake for proper operation?
3.1.12 Check the master cylinder and parking brake mechanism for condition and security.	<p>E3.1.12.1 Does not know how to inspect the master cylinder and parking brake mechanism for condition and security (EC 1).</p> <p>E3.1.12.2 Does not bring the correct for inspecting the master cylinder and parking brake mechanism for condition and security (EC 5).</p> <p>E3.1.12.3 Does not inspect the master cylinder and parking brake mechanism for condition and security (EC 6).</p>	Does inspect the master cylinder and parking brake mechanism for condition and security.	Are the inspectors trained on inspecting the master cylinder and parking brake mechanism for condition and security?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.13 Check the fluid level and test operation of toe and parking brake. Refer to Chapter 12-13-00 for servicing instructions.	<p>E3.1.13.1 Does not know how to check the fluid level and test operation of toe and parking brake (EC 1).</p> <p>E3.1.13.2 Does not bring the correct tools for checking the fluid level and test operation of toe and parking brake (EC 5).</p> <p>E3.1.13.3 Does not check the fluid level and test operation of toe and parking brake (EC 6).</p>	Does check the fluid level and test operation of toe and parking brake.	Are the inspectors trained on checking the fluid level and test operation of toe and parking brake?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.14 Check the brake lines, wheel cylinders, hoses, clamps, and fittings for leaks, condition, and security and hoses for bulges and deterioration.	<p>E3.1.14.1 Does not know how to check the brake lines, wheel cylinders, hoses, clamps, and fittings for leaks, condition, and security and hoses for bulges and deterioration (EC 1).</p> <p>E3.1.14.2 Does not bring the correct tools for Checking the brake lines, wheel cylinders, hoses, clamps, and fittings for leaks, condition, and security and hoses for bulges and deterioration (EC 5).</p> <p>E3.1.14.3 Does not check the brake lines, wheel cylinders, hoses, clamps, and fittings for leaks, condition, and security and hoses for bulges and deterioration (EC 6).</p>	Does check the brake lines, wheel cylinders, hoses, clamps, and fittings for leaks, condition, and security and hoses for bulges and deterioration.	Are the inspectors trained on checking the brake lines, wheel cylinders, hoses, clamps, and fittings for leaks, condition, and security and hoses for bulges and deterioration?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.15 Check brake lines and hoses for proper routing and support.	<p>E3.1.15.1 Does not know how to check brake lines and hoses for proper routing and support (EC 1).</p> <p>E3.1.15.2 Does not bring the correct tools for checking brake lines and hoses for proper routing and support (EC 5).</p> <p>E3.1.15.3 Does not check brake lines and hoses for proper routing and support (EC 6).</p>	Does check brake lines and hoses for proper routing and support.	Are the inspectors trained on inspecting brake lines and hoses for proper routing and support?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.16 Check tread wear and general condition of the tires.	<p>E3.1.16.1 Does not know how to check tread wear and general condition of the tires (EC 1).</p> <p>E3.1.16.2 Does not bring the correct tools for checking tread wear and general condition of the tires (EC 5).</p> <p>E3.1.16.3 Does not check tread wear and general condition of the tires (EC 6).</p>	Does inspect tread wear and general condition of the tires.	Are the inspectors trained on inspecting tread wear and general condition of the tires?
3.1.17 Check for proper inflation.	<p>E3.1.17.1 Does not know how to check for proper inflation (EC 1).</p> <p>E3.1.17.2 Does not bring the correct tools for checking proper inflation (EC 5).</p> <p>E3.1.17.3 Does not check for proper inflation (EC 6).</p>	Does check for proper inflation.	Are the inspectors trained on inspecting for proper inflation?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.18 Inspect the wheels, brake discs, and linings for wear, cracks, warps, dents, or other damage.	<p>E3.1.18.1 Does not know how to inspect the wheels, brake discs, and linings for wear, cracks, warps, dents, or other damage (EC 1).</p> <p>E3.1.18.2 Does not bring the correct tools for inspecting the wheels, brake discs, and linings for wear, cracks, warps, dents, or other damage (EC 5).</p> <p>E3.1.18.3 Does not inspect the wheels, brake discs, and linings for wear, cracks, warps, dents, or other damage (EC 6).</p>	Does inspect the wheels, brake discs, and linings for wear, cracks, warps, dents, or other damage.	Are the inspectors trained on inspecting the wheels, brake discs, and linings for wear, cracks, warps, dents, or other damage?
3.1.19 Check wheel through-bolts and nuts for looseness.	<p>E3.1.19.1 Does not know how to check wheel through-bolts and nuts for looseness (EC 1).</p> <p>E3.1.19.2 Does not bring the equipments to check wheel through-bolts and nuts for looseness (EC 5).</p> <p>E3.1.19.3 Does not check wheel through-bolts and nuts for looseness (EC 6).</p>	Does check wheel through-bolts and nuts for looseness.	Are the inspectors trained on inspecting the wheel through-bolts and nuts for looseness?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
3.1.20 Clean, inspect and lube the wheel bearings.	<p>E3.1.20.1 Does not know how to inspect and lube the wheel bearings (EC 1).</p> <p>E3.1.20.2 Does not bring the equipments for inspecting and lubricating the wheel bearings (EC 5).</p> <p>E3.1.20.3 Does not inspect and lube the wheel bearings (EC 6).</p>	Does clean, inspect and lube the wheel bearings.	Are the inspectors trained on inspecting, cleaning and lubricating the wheel bearings?
3.1.21 Check the nose gear steering mechanism for wear, security, and proper rigging.	<p>E3.1.21.1 Does not know how to inspect the nose gear steering mechanism for wear, security, and proper rigging (EC 1).</p> <p>E3.1.21.2 Does not bring the correct tools for inspection (EC 5).</p> <p>E3.1.21.3 Does not inspect the nose gear steering mechanism for wear, security, and proper rigging (EC 1).</p>	Does inspect the nose gear steering mechanism for wear, security, and proper rigging.	Are the inspectors trained on inspecting the nose gear steering mechanism for wear, security, and proper rigging?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
4.0 DECISION ON INDICATION			
<i>4.1 Identify Indication Type</i>	<p>E4.1.1 Does not know the correct indication type (EC 5).</p> <p>E4.1.2 Identifies the type of defect incorrectly (EC 6).</p> <p>E4.1.3 Forgets the area where the inspector has originally identified the indication (EC 6).</p> <p>E4.1.4 Interprets the indication type incorrectly (EC 3).</p>	Does identify the correct indication.	Are the inspectors trained in identifying the correct indication type?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
4.2 Measure Indication Size	<p>E4.2.1 Does not know how to measure the indication size (EC 5).</p> <p>E 4.2.2 Does not bring the correct equipment to measure the indication size. (EC 6).</p> <p>E4.2.3 Measures the indication incorrectly (EC 6).</p> <p>E4.2.4 Interprets the measurement of indication size incorrectly (EC 3).</p>	Does measure the indication size correctly.	Are the inspectors trained in measuring the indication size correctly?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
<i>4.3 Compare Indication to Standard</i>	<p>E 4.3.1 Does not know the correct standards (EC 5).</p> <p>E4.3.2 Does not bring the correct standards documentation (EC 6).</p> <p>E4.3.3 Does not know how to compare the indication to standard (EC 5).</p> <p>E4.3.4 Compares the indication to standard incorrectly (EC 6).</p> <p>E4.3.5 Interprets the comparison incorrectly (EC 3).</p>	Does compare the indication to standard correctly.	Are the inspectors trained in comparing the indication to standard correctly?
5.0 RESPOND TO INSPECTION			
<i>5.1 Check Defect Location</i>	<p>E5.1.1 Does not know the correct defect location (EC 5).</p> <p>E5.1.2 Checks the defect location incorrectly (EC 6).</p> <p>E5.1.3 Misses the location where the inspector has originally identified the defect (EC 6).</p>	Does check the defect location correctly.	Are the inspectors trained to check the correct location of defect?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
5.2 <i>Record Defect Location</i>	<p>E5.2.1 Does not know how to record the defect location (EC 5).</p> <p>E5.2.2 Does not bring the correct equipments to record the defect location (EC 6).</p> <p>E5.2.3 Records the indication incorrectly (EC 6).</p>	Does record the defect location correctly.	Are the inspectors trained to record the location of defect?
5.3 <i>Record Defect Type, Comments</i>	<p>E5.3.1 Does not know the correct defect type (EC 5).</p> <p>E5.3.2 Records the type of defect incorrectly (EC 6).</p> <p>E5.3.3 Does not know how to record the comments on a particular defect type (EC 5).</p> <p>E5.3.4 Records the comments incorrectly (EC 6).</p>	Does record the defect type and comments correctly.	Are the inspectors trained to record the defect type and comments correctly?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
<i>5.4 Final Decision</i>	E5.4.1 Does not make the correct final decision (EC 6). E5.4.2 Does not know how to make a final decision (EC 5).	Does make the correct final decision.	Are the inspectors trained to make the correct final decision?
5.4.1 Sign off the work card.	E5.4.1.1 Does not know how to sign off the work card (EC 5). E5.4.1.2 Does not bring the correct work card (EC 6). E5.4.1.3 Signs off the work card incorrectly (EC 6).	Does sign off the work card correctly.	Are the inspectors trained on to sign off work card?
6.0 RETURN EQUIPMENT TO STORAGE			
<i>6.1 Remove Equipment, Supplies from Inspection Area</i>	E6.1.1 Does not know to remove the equipments from the inspection area (EC 5). E6.1.2 Does not know to remove supplies from the inspection area (EC 5). E6.1.3 Removes the equipments and supplies from the inspection area incorrectly (EC 6).	Does remove the equipment and supplies from the inspection area correctly.	Are the inspectors trained to remove the equipment and supplies from the inspection area correctly?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
<i>6.2 Clean Equipment</i>	<p>E6.2.1 Does not know how to clean the equipment correctly (EC 5).</p> <p>E6.2.2 Does not bring the correct cleaning equipment (EC 6).</p>	Does clean the equipment correctly.	Are the inspectors trained on cleaning the equipment correctly?
<i>6.3 Return Support Equipment to Storage</i>	<p>E6.3.1 Does not know where to return the support equipment (EC 5).</p> <p>E6.3.2 Does not know the correct procedure to return support equipment (EC 5).</p> <p>E6.3.3 Does not return the support equipment to storage (EC 6).</p>	Does return the support equipment to storage.	Are the inspectors trained on returning the support equipment to the storage?

Appendix B3

EC 1 TYPE ERROR	TRAINING NEEDS
E1.1.1.1 Does not have the correct documentation (EC1).	Are the inspectors trained to locate the correct documentation?
E1.1.1.2 Does not have the documentation (EC 1).	
E1.1.3.1 Does not know about the different types of defects (EC 1).	Are the inspectors trained to detect the different types of defects?
E1.1.3.2 Does not know all the defects (EC 1).	Are the inspectors trained to map the defects with criticality?
E1.1.3.3 Does not know about the criticality of defects (EC 1).	Are the inspectors trained to determine the probability of the occurring defects?
E1.1.3.4 Does map the defects with criticality incorrectly (EC 1).	Are the inspectors trained to locate the defects correctly?
E1.1.3.5 Does not know how often the defects occur (EC 1).	
E1.1.3.6 Does not know about the location of the defects (EC 1).	
E1.1.3.7 Does map the defects with location incorrectly (EC 1).	

EC 1 TYPE ERROR	TRAINING NEEDS
E1.1.4.1 Does not know how to select the starting point for search (EC 1). E1.1.4.2 Does not know the starting point for the search (EC 1).	Are the inspectors well versed with how to start a search?
E1.1.5.1 Does not know what a search strategy is (EC 1). E1.1.5.2 Does not how to select a search strategy (EC 1).	Are the inspectors trained to form the correct search strategy?
E1.2.1.1.1 Does not collect the mirror (EC 1). E1.2.1.2.1 Does not collect the magnifying loupe (EC 1). E1.2.1.3.1 Does not collect the cleaning cloth at the required time (EC 1). E1.2.1.4.1 Does not collect the measuring equipment (EC 1).	Are the inspectors trained on collecting the appropriate equipment?

EC 1 TYPE ERROR	TRAINING NEEDS
E1.2.1.5.1 Does not collect the support equipment (EC 1).	Are the inspectors trained on collecting the appropriate equipment?
E1.2.1.6.1 Does not know how to move the workbench closer to the aircraft (EC 1).	Are the inspectors trained on moving the support equipment closer to the aircraft?
E1.3.1.1 Does not check the mirror (EC 1). E1.3.1.3 Does not check the loupe (EC 1). E1.3.1.5 Does not check the cleaning cloth (EC 1).	Are the inspectors trained to check the mirror correctly? Are the inspectors trained to check the loupe correctly? Are the inspectors trained to check the cleaning cloth correctly?
E1.3.2.1 Does not know how to check support equipment (EC 1). E1.3.2.2 Does not check the support equipment (EC 1).	Are the inspectors trained to check the support equipment correctly?

EC 1 TYPE ERROR	TRAINING NEEDS
<p>E3.1.1.1 Does not know how to check the main landing gear fairings and break fairings for cracks, dents, and condition of paint (EC 1).</p> <p>E3.1.1.2 Does not know how to identify the cracks, dents, and condition of paint (EC 1).</p> <p>E3.1.1.4 Does not inspect the main landing gear fairings and brake fairings for cracks, dents, and condition of paint (EC 1).</p>	<p>Are the inspectors trained on detecting the main landing gear fairings and brake fairings for cracks, dents, and condition of paint?</p>
<p>E3.1.2.1 Does not know how to inspect the main gear spring assemblies for cracks, dents, corrosion, condition of paint or other damage (EC 1).</p> <p>E3.1.2.3 Does not inspect the main gear spring assemblies for cracks, dents, corrosion, condition of paint or other damage (EC 1).</p>	<p>Are the inspectors trained on identifying cracks, dents, corrosion, condition of paint or other damage on the main gear spring assemblies?</p>

EC 1 TYPE ERROR	TRAINING NEEDS
E3.1.3.1 Does not know how to inspect axles for condition and security (EC 1).	Are the inspectors trained on how to inspect axles for condition and security?
E3.1.4.1 Does not know how to inspect the main landing gear attachment structure for damage, cracks, loose rivets, bolts and nuts and security of attachment (EC 1).	Are the inspectors trained on inspecting the main landing gear attachment structure for damage, cracks, loose rivets, bolts and nuts and security of attachment?
E3.1.5.1 Does not know how to inspect torque links, steering rods, and boots for condition and security of attachment on a nose gear (EC 1).	Are the inspectors trained on how to inspect torque links, steering rods, and boots for condition and security of attachment?
E3.1.6.1 Does not know how to inspect the strut barrel for corrosion, pitting and cleanliness (EC 1).	Are the inspectors trained on how to inspect the strut barrel for corrosion, pitting and cleanliness?
E3.1.7.1 Does not know how to inspect shimmy damper and/or bungees for operation, leakage, and attach points for wear and security (EC 1).	Are the inspectors trained on how to inspect the shimmy damper and/or bungees for operation, leakage, and attach points for wear and security?
E3.1.8.1 Does not know how to inspect the nose landing gear wheel fairings for cracks, dents, and condition of paint (EC 1).	Are the inspectors trained on how to inspect the nose landing gear wheel fairings for cracks, dents, and condition of paint?

EC 1 TYPE ERROR	TRAINING NEEDS
E3.1.9.1 Does not know how to inspect the nose gear fork for cracks, general condition, and security of attachment (EC 1).	Are the inspectors trained on how to inspect the nose gear fork for cracks, general condition, and security of attachment?
E3.1.10.1 Does not know how to inspect the nose gear attachment structure for cracks, or other damage and security of attachment (EC 1).	Are the inspectors trained on how to inspect the nose gear attachment structure for cracks, or other damage and security of attachment?
E3.1.11.1 Does not know how to test toe brakes and parking brake for proper operation (EC 1).	Are the inspectors trained on testing toe brakes and parking brake for proper operation?
E3.1.12.1 Does not know how to inspect the master cylinder and parking brake mechanism for condition and security (EC 1).	Are the inspectors trained on inspecting the master cylinder and parking brake mechanism for condition and security?
E3.1.13.1 Does not know how to check the fluid level and test operation of toe and parking brake (EC 1).	Are the inspectors trained on checking the fluid level and test operation of toe and parking brake?
E3.1.14.1 Does not know how to check the brake lines, wheel cylinders, hoses, clamps, and fittings for leaks, condition, and security and hoses for bulges and deterioration (EC 1).	Are the inspectors trained on checking the brake lines, wheel cylinders, hoses, clamps, and fittings for leaks, condition, and security and hoses for bulges and deterioration?
E3.1.15.1 Does not know how to check brake lines and hoses for proper routing and support (EC 1).	Are the inspectors trained on inspecting brake lines and hoses for proper routing and support?

EC 1 TYPE ERROR	TRAINING NEEDS
E3.1.16.1 Does not know how to check tread wear and general condition of the tires (EC 1).	Are the inspectors trained on inspecting tread wear and general condition of the tires?
E3.1.17.1 Does not know how to check for proper inflation (EC 1).	Are the inspectors trained on inspecting for proper inflation?
E3.1.18.1 Does not know how to inspect the wheels, brake discs, and linings for wear, cracks, warps, dents, or other damage (EC 1).	Are the inspectors trained on inspecting the wheels, brake discs, and linings for wear, cracks, warps, dents, or other damage?
E3.1.19.1 Does not know how to check wheel through-bolts and nuts for looseness (EC 1).	Are the inspectors trained on inspecting the wheel through-bolts and nuts for looseness?
E3.1.20.1 Does not know how to inspect and lube the wheel bearings (EC 1).	Are the inspectors trained on inspecting, cleaning and lubricating the wheel bearings?
E3.1.21.1 Does not know how to inspect the nose gear steering mechanism for wear, security, and proper rigging (EC 1). E3.1.21.3 Does not inspect the nose gear steering mechanism for wear, security, and proper rigging (EC 1)	Are the inspectors trained on inspecting the nose gear steering mechanism for wear, security, and proper rigging?

EC 2 TYPE ERROR	TRAINING NEEDS
<p>E1.1.2.7 Does not create a mental model (EC 2).</p> <p>E1.1.2.8 Created an incorrect mental model (EC 2).</p> <p>E1.1.2.9 Created a mental model irrelevant to task and strategy (EC 2).</p> <p>E1.1.2.10 Does not know how to create a mental model (EC 2).</p>	<p>Are the inspectors trained to form the correct mental model?</p> <p>Are the inspectors trained to plan the correct strategy?</p>

EC 3 TYPE ERROR	TRAINING NEEDS
E4.1.4 Interprets the indication type incorrectly (EC 3).	Are the inspectors trained in identifying the correct indication type?
E4.2.4 Interprets the measurement of indication size incorrectly (EC 3).	Are the inspectors trained in measuring the indication size correctly?
E4.3.5 Interprets the comparison incorrectly (EC 3).	Are the inspectors trained in comparing the indication to standard correctly?

EC 4 TYPE ERROR	TRAINING NEEDS
<p>E1.1.2.1 Does not plan the task (EC 4).</p> <p>E1.1.2.2 Does plan the task incorrectly (EC 4).</p> <p>E1.1.2.3 Does not plan the correct task (EC 4).</p> <p>E1.1.2.4 Does not plan the strategy (EC 4).</p> <p>E1.1.2.5 Does plan the strategy incorrectly (EC 4).</p> <p>E1.1.2.6 Does not plan the correct strategy (EC 4).</p>	<p>Are the inspectors trained to form the correct task?</p> <p>Are the inspectors trained to form the correct mental model?</p> <p>Are the inspectors trained to plan the correct strategy?</p>

EC 5 TYPE ERROR	TRAINING NEEDS
E1.1.1.4 Does not know how to read the document (EC 5).	Are the inspectors trained to read documentation?
E2.1.1.1 Does not know how to locate task area near the landing gear (EC 5).	Are the inspectors trained in locating the task area near the landing gear correctly?
E2.2.1.1 Does not know how to move support equipment into place (EC 5).	Are the inspectors trained on handling the support equipment correctly?
E2.2.2.1 Does not know how to remove the wheel and brake fairings (EC 5).	Are the inspectors trained on how to gain access to the different areas for inspection by removing the floor panels?
E2.2.3.1 Does not know how to use support equipment to reach inspection area (EC 5).	Are the inspectors trained on using the support equipment to reach inspection area?
E3.1.2.2 Does not bring the correct equipments and tools for the inspection of the main gear spring assemblies for cracks, dents, corrosion, condition of paint or other damage (EC 5).	Are the inspectors trained on identifying cracks, dents, corrosion, condition of paint or other damage on the main gear spring assemblies?
E3.1.3.2 Does not bring the correct tools to inspect the axles (EC 5).	Are the inspectors trained on how to inspect axles for condition and security?

EC 5 TYPE ERROR	TRAINING NEEDS
E3.1.4.2 Does not bring the correct tools or equipments to inspect the main landing gear attachment structure for damage, cracks, loose rivets, bolts and nuts and security of attachment (EC 5).	Are the inspectors trained on inspecting the main landing gear attachment structure for damage, cracks, loose rivets, bolts and nuts and security of attachment?
E3.1.5.2 Does not bring the correct tools or equipments to inspect the inspect torque links, steering rods, and boots for condition and security of attachment (EC 5).	Are the inspectors trained on how to inspect torque links, steering rods, and boots for condition and security of attachment?
E3.1.6.2 Does not bring the correct tools to inspect the strut barrel for corrosion, pitting and cleanliness (EC 5).	Are the inspectors trained on how to inspect the strut barrel for corrosion, pitting and cleanliness?
E3.1.7.2 Does not bring the correct tools to inspect the shimmy damper and/or bungees for operation, leakage, and attach points for wear and security (EC 5).	Are the inspectors trained on how to inspect the shimmy damper and/or bungees for operation, leakage, and attach points for wear and security?

EC 5 TYPE ERROR	TRAINING NEEDS
E3.1.8.2 Does not bring the correct tools to inspect the nose landing gear wheel fairings for cracks, dents, and condition of paint (EC 5).	Are the inspectors trained on how to inspect the nose landing gear wheel fairings for cracks, dents, and condition of paint?
E3.1.9.2 Does not bring the correct tools to inspect the nose gear fork for cracks, general condition, and security of attachment (EC 5).	Are the inspectors trained on how to inspect the nose gear fork for cracks, general condition, and security of attachment?
E3.1.10.2 Does not bring the correct tools to inspect the nose gear attachment structure for cracks, or other damage and security of attachment (EC 5).	Are the inspectors trained on how to inspect the nose gear attachment structure for cracks, or other damage and security of attachment?
E3.1.11.2 Does not bring the correct for testing toe brakes and parking brake for proper operation (EC 5).	Are the inspectors trained on testing toe brakes and parking brake for proper operation?
E3.1.12.2 Does not bring the correct for inspecting the master cylinder and parking brake mechanism for condition and security (EC 5).	Are the inspectors trained on inspecting the master cylinder and parking brake mechanism for condition and security?
E3.1.13.2 Does not bring the correct tools for checking the fluid level and test operation of toe and parking brake (EC 5).	Are the inspectors trained on checking the fluid level and test operation of toe and parking brake?
E3.1.14.2 Does not bring the correct tools for Checking the brake lines, wheel cylinders, hoses, clamps, and fittings for leaks, condition, and security and hoses for bulges and deterioration (EC 5).	Are the inspectors trained on checking the brake lines, wheel cylinders, hoses, clamps, and fittings for leaks, condition, and security and hoses for bulges and deterioration?

EC 5 TYPE ERROR	TRAINING NEEDS
E3.1.15.2 Does not bring the correct tools for checking brake lines and hoses for proper routing and support (EC 5).	Are the inspectors trained on inspecting brake lines and hoses for proper routing and support?
E3.1.16.2 Does not bring the correct tools for checking tread wear and general condition of the tires (EC 5).	Are the inspectors trained on inspecting tread wear and general condition of the tires?
E3.1.17.2 Does not bring the correct tools for checking proper inflation (EC 5).	Are the inspectors trained on inspecting for proper inflation?
E3.1.18.2 Does not bring the correct tools for inspecting the wheels, brake discs, and linings for wear, cracks, warps, dents, or other damage (EC 5).	Are the inspectors trained on inspecting the wheels, brake discs, and linings for wear, cracks, warps, dents, or other damage?
E3.1.19.2 Does not bring the equipments to check wheel through-bolts and nuts for looseness (EC 5).	Are the inspectors trained on inspecting the wheel through-bolts and nuts for looseness?
E3.1.20.2 Does not bring the equipments for inspecting and lubricating the wheel bearings (EC 5).	Are the inspectors trained on inspecting, cleaning and lubricating the wheel bearings?
E3.1.21.2 Does not bring the correct tools for inspection (EC 5).	Are the inspectors trained on inspecting the nose gear steering mechanism for wear, security, and proper rigging?

EC 5 TYPE ERROR	TRAINING NEEDS
E4.1.1 Does not know the correct indication type (EC 5).	Are the inspectors trained in identifying the correct indication type?
E4.2.1 Does not know how to measure the indication size (EC 5).	Are the inspectors trained in measuring the indication size correctly?
E 4.3.1 Does not know the correct standards (EC 5). E4.3.3 Does not know how to compare the indication to standard (EC 5).	Are the inspectors trained in comparing the indication to standard correctly?
E5.1.1 Does not know the correct defect location (EC 5).	Are the inspectors trained to check the correct location of defect?
E5.2.1 Does not know how to record the defect location (EC 5).	Are the inspectors trained to record the location of defect?
E5.3.1 Does not know the correct defect type (EC 5). E5.3.3 Does not know how to record the comments on a particular defect type (EC 5).	Are the inspectors trained to record the defect type and comments correctly?

EC 5 TYPE ERROR	TRAINING NEEDS
E5.4.2 Does not know how to make a final decision (EC 5).	Are the inspectors trained to make the correct final decision?
E5.4.1.1 Does not know how to sign off the work card (EC 5).	Are the inspectors trained on to sign off work card?
E6.1.1 Does not know to remove the equipments from the inspection area (EC 5). E6.1.2 Does not know to remove supplies from the inspection area (EC 5).	Are the inspectors trained to remove the equipment and supplies from the inspection area correctly?
E6.2.1 Does not know how to clean the equipment correctly (EC 5).	Are the inspectors trained on cleaning the equipment correctly?
E6.3.1 Does not know where to return the support equipment (EC 5). E6.3.2 Does not know the correct procedure to return support equipment (EC 5).	Are the inspectors trained on returning the support equipment to the storage?

EC 6 TYPE ERROR	TRAINING NEEDS
E1.1.1.3 Does read the document incorrectly (EC 6).	Are the inspectors trained to read and interpret the correct documentation?
E1.1.4.3 Select the wrong starting point for search (EC 6).	Are the inspectors well versed with how to start a search?
E1.1.5.3 Select the wrong search strategy (EC 6).	Are the inspectors trained to form the correct search strategy?
E1.2.1.1.2 Does collect the faulty mirror (EC 6).	Are the inspectors trained to collect the mirror?
E1.2.1.2.2 Does collect the faulty magnifying loupe (EC 6).	Are the inspectors trained to collect the magnifying loupe?
E1.2.1.4.2 Does collect the faulty measuring equipment (EC 6).	Are the inspectors trained to collect the measuring equipment?
E1.2.1.5.2 Does collect the faulty support equipment (EC 6).	Are the inspectors trained to collect the support equipment?
E1.2.1.6.2 Does not move the workbench closer to the aircraft. (EC 6)	Are the inspectors trained on moving the support equipment closer to the aircraft?
E1.3.1.3 Does check the mirror incorrectly (EC 6). E1.3.1.6 Does check the loupe incorrectly (EC 6). E1.3.1.9 Does check the cleaning cloth incorrectly (EC 6).	Are the inspectors trained to check the mirror correctly? Are the inspectors trained to check the loupe correctly? Are the inspectors trained to check the cleaning cloth correctly?
E1.3.2.3 Does check the support equipment incorrectly (EC 6).	Are the inspectors trained to check the support equipment correctly?

EC 6 TYPE ERROR	TRAINING NEEDS
<p>E2.1.1.2 Does not locate the task area near the landing gear (EC 6).</p> <p>E2.1.1.3 Does locate the wrong task area near the landing gear (EC 6).</p>	<p>Are the inspectors trained in locating the task area near the landing gear correctly?</p>
<p>E2.2.1.2 Does not move support equipment into place (EC 6).</p> <p>E2.2.1.3 Does move the support equipment into inappropriate place (EC 6).</p>	<p>Are the inspectors trained on handling the support equipment correctly?</p>
<p>E2.2.2.2 Does not remove the wheel and brake fairings (EC 6).</p>	<p>Are the inspectors trained on how to gain access to the different areas for inspection by removing the floor panels?</p>
<p>E2.2.3.2 Does not use the support equipment to reach inspection area (EC 6).</p> <p>E2.2.3.3 Does use the wrong support equipment to reach inspection area (EC 6).</p>	<p>Are the inspectors trained on using the support equipment to reach inspection area?</p>
<p>E3.1.1.3 Does not bring the correct tools or other equipments to inspect the cracks, dents, and condition of paint (EC 6).</p>	<p>Are the inspectors trained on detecting the main landing gear fairings and brake fairings for cracks, dents, and condition of paint?</p>

EC 6 TYPE ERROR	TRAINING NEEDS
E3.1.3.3 Does not inspect the axles for condition and security (EC 6).	Are the inspectors trained on how to inspect axles for condition and security?
E3.1.4.3 Does not inspect the main landing gear attachment structure for damage, cracks, loose rivets, bolts and nuts and security of attachment (EC 6).	Are the inspectors trained on inspecting the main landing gear attachment structure for damage, cracks, loose rivets, bolts and nuts and security of attachment?
E3.1.5.3 Does not Inspect torque links, steering rods, and boots for condition and security of attachment (EC 6).	Are the inspectors trained on how to inspect torque links, steering rods, and boots for condition and security of attachment?
E3.1.6.3 Does not inspect the strut barrel for corrosion, pitting and cleanliness (EC 6).	Are the inspectors trained on how to inspect the strut barrel for corrosion, pitting and cleanliness?

EC 6 TYPE ERROR	TRAINING NEEDS
E3.1.7.3 Does not inspect the shimmy damper and/or bungees for operation, leakage, and attach points for wear and security (EC 6).	Are the inspectors trained on how to inspect the shimmy damper and/or bungees for operation, leakage, and attach points for wear and security?
E3.1.8.3 Does not inspect nose landing gear wheel fairings for cracks, dents, and condition of paint (EC 6).	Are the inspectors trained on how to inspect the nose landing gear wheel fairings for cracks, dents, and condition of paint?
E3.1.9.3 Does not inspect the nose gear fork for cracks, general condition, and security of attachment (EC 6).	Are the inspectors trained on how to inspect the nose gear fork for cracks, general condition, and security of attachment?
E3.1.10.3 Does not inspect the nose gear attachment structure for cracks, or other damage and security of attachment (EC 6).	Are the inspectors trained on how to inspect the nose gear attachment structure for cracks, or other damage and security of attachment?
E3.1.11.3 Does not test toe brakes and parking brake for proper operation (EC 6).	Are the inspectors trained on testing toe brakes and parking brake for proper operation?
E3.1.12.3 Does not inspect the master cylinder and parking brake mechanism for condition and security (EC 6).	Are the inspectors trained on inspecting the master cylinder and parking brake mechanism for condition and security?
E3.1.13.3 Does not check the fluid level and test operation of toe and parking brake (EC 6).	Are the inspectors trained on checking the fluid level and test operation of toe and parking brake?

EC 6 TYPE ERROR	TRAINING NEEDS
E3.1.14.3 Does not check the brake lines, wheel cylinders, hoses, clamps, and fittings for leaks, condition, and security and hoses for bulges and deterioration (EC 6).	Are the inspectors trained on checking the brake lines, wheel cylinders, hoses, clamps, and fittings for leaks, condition, and security and hoses for bulges and deterioration?
E3.1.15.3 Does not check brake lines and hoses for proper routing and support (EC 6).	Are the inspectors trained on inspecting brake lines and hoses for proper routing and support?
E3.1.16.3 Does not check tread wear and general condition of the tires (EC 6).	Are the inspectors trained on inspecting tread wear and general condition of the tires?
E3.1.17.3 Does not check for proper inflation (EC 6).	Are the inspectors trained on inspecting for proper inflation?
E3.1.18.3 Does not inspect the wheels, brake discs, and linings for wear, cracks, warps, dents, or other damage (EC 6).	Are the inspectors trained on inspecting the wheels, brake discs, and linings for wear, cracks, warps, dents, or other damage?
E3.1.19.3 Does not check wheel through-bolts and nuts for looseness (EC 6).	Are the inspectors trained on inspecting the wheel through-bolts and nuts for looseness?
E3.1.20.3 Does not inspect and lube the wheel bearings (EC 6).	Are the inspectors trained on inspecting, cleaning and lubricating the wheel bearings?

EC 6 TYPE ERROR	TRAINING NEEDS
E4.1.2 Identifies the type of defect incorrectly (EC 6). E4.1.3 Forgets the area where the inspector has originally identified the indication (EC 6).	Are the inspectors trained in identifying the correct indication type?
E 4.2.2 Does not bring the correct equipment to measure the indication size. (EC 6). E4.2.3 Measures the indication incorrectly (EC 6).	Are the inspectors trained in measuring the indication size correctly?
E4.3.2 Does not bring the correct standards documentation (EC 6). E4.3.4 Compares the indication to standard incorrectly (EC 6).	Are the inspectors trained in comparing the indication to standard correctly?
E5.1.2 Checks the defect location incorrectly (EC 6). E5.1.3 Misses the location where the inspector has originally identified the defect (EC 6).	Are the inspectors trained to check the correct location of defect?
E5.2.2 Does not bring the correct equipments to record the defect location (EC 6). E5.2.3 Records the indication incorrectly (EC 6).	Are the inspectors trained to record the location of defect?

EC 6 TYPE ERROR	TRAINING NEEDS
E5.3.2 Records the type of defect incorrectly (EC 6). E5.3.4 Records the comments incorrectly (EC 6).	Are the inspectors trained to record the defect type and comments correctly?
E5.4.1 Does not make the correct final decision (EC 6).	Are the inspectors trained to make the correct final decision?
E5.4.1.2 Does not bring the correct work card (EC 6). E5.4.1.3 Signs off the work card incorrectly (EC 6).	Are the inspectors trained on to sign off work card?
E6.1.3 Removes the equipments and supplies from the inspection area incorrectly (EC 6).	Are the inspectors trained to remove the equipment and supplies from the inspection area correctly?
E6.2.2 Does not bring the correct cleaning equipment (EC 6).	Are the inspectors trained on cleaning the equipment correctly?
E6.3.3 Does not return the support equipment to storage (EC 6).	Are the inspectors trained on returning the support equipment to the storage?

Appendix B4

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
1.1.1 Consists information on: <ul style="list-style-type: none"> Identifying the correct document. Reading the correct information. 	6.1.5 Documented procedures 6.4 Reports and documentation		
1.1.2 Consists information on: <ul style="list-style-type: none"> tasks strategies mental models planning the appropriate task planning the appropriate strategy creating appropriate mental models 	6.1 Selection of Parameters		
1.1.3 Consists information on: <ul style="list-style-type: none"> different types of defects criticality of the defects probability of the defects location of the defects correctly mapping the defects with criticality. correctly mapping the defects with location. 	5.0 Employer defined applications 6.3 Classification of indications per acceptance criteria	9.0 Acceptance / Rejection criteria	

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
1.1.4 <ul style="list-style-type: none"> Consists information on starting point for search. Consists of steps on correctly choosing the starting point for search. 	6.1 Selection of Parameters		
1.1.5 <ul style="list-style-type: none"> Consists information about various search strategies. Consists information on how to choose the appropriate strategy. 	6.1 Selection of Parameters		
1.2.1, 1.2.2 <ul style="list-style-type: none"> Consists information on tools required for a particular task. Consists information on using the tools and support equipment. Consists information about the mirror, magnifying loupe and cleaning cloth. Consists information on how to collect an appropriate mirror. Consists information on how to collect an appropriate magnifying loupe. Consists information on how to collect a cleaning cloth. Consists information about the support equipment required for a particular task. Consists information on substitute equipment if correct equipment is not available. 	4.0 Equipment		2.0 Equipment Accessories

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
1.3.1 <ul style="list-style-type: none"> Consists information on how to check the mirror. Consists information on how to check the loupe. Consists information on how to check the cleaning cloth. 	3.3 Material Attributes 4.0 Equipment	4.0 Material Attributes	
1.3.2 <ul style="list-style-type: none"> Consists information about the support equipment (Boroscope). Consists information on how to check the support equipment (Boroscope). Consists information on how to handle the support equipment. 	3.3 Material Attributes 4.0 Equipment	4.0 Material Attributes	
2.1.1 <ul style="list-style-type: none"> Consists information on task area. Consists information on locating the correct task area. Consists information on aircraft numerical locations. Consists information on clear landmarks to help define boundaries of an inspection task. 	6.1 Selection of parameters	6.0 Visual perception	
2.2.1 <ul style="list-style-type: none"> Consists information on adequate access equipment required for performing the task. Consists information on how to move the support equipment to an appropriate place. 	3.3 Material Attributes 4.0 Equipment	4.0 Material Attributes	
2.2.2 <ul style="list-style-type: none"> Consists information on how to remove the wheel fairings and brake fairings, and gain access. 	3.3 Material Attributes 4.0 Equipment	4.0 Material Attributes	

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
2.2.3 <ul style="list-style-type: none"> Consists information on how to use appropriate support equipment to reach the inspection area. 	3.3 Material Attributes 4.0 Equipment	4.0 Material Attributes	
2.2.4 <ul style="list-style-type: none"> Consists information on adequate amount of lighting required for the task. Consists information on initial possible position where body, eyes, light, mirror and loupe can be setup to view area. Consists information on comfortable body position while viewing the inspection area. Consists information on easily handling mirror, lighting and loupe together. Consists information on easily moving mirror, lighting and loupe together. Consists information on moving the support equipment when the inspector changes his position. 	3.0 Fundamentals 4.0 Equipment	3.0 Lighting 4.0 Material Attributes	1.0 Principles /theory 2.0 Equipment accessories
3.1.1 <ul style="list-style-type: none"> Consists information on how to check the main landing gear fairings and break fairings. Consists information on all the different types of defects. Consists information on the tools required to inspect the main landing gear fairings and break fairings. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/ Evaluation
3.1.2 <ul style="list-style-type: none"> Consists information on how to inspect the main gear spring assemblies. Consists information on the different types of defects. Consists information on the tools required to inspect the main gear spring assemblies. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/ Evaluation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
3.1.3 <ul style="list-style-type: none"> Consists information on how to check axles for condition and security. Consists information on the tools required to check axles 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.4 <ul style="list-style-type: none"> Consists information on how to check the main landing gear attachment structure. Consists information on the tools required to check the main landing gear attachment structure. Consists information on damage, cracks, loose rivets, bolts and nuts and security of attachment. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.5 <ul style="list-style-type: none"> Consists information on how to inspect torque links, steering rods, and boots. Consists information on the tools required to inspect torque links, steering rods, and boots. Consists information on torque links, steering rods, and boots. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.6 <ul style="list-style-type: none"> Consists information on how to check strut barrel. Consists information on the tools required to check strut barrel. Consists information on the different types of defects. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
3.1.7 <ul style="list-style-type: none"> Consists information on how to check shimmy damper and/or bungees and attach points. Consists information on the tools required to check shimmy damper and/or bungees and attach points. Consists information on shimmy damper and/or bungees, and attach points. Consists information on the different types of defects. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position 7.1 Automated Systems	1.3 Test object characteristics 2.6 Automated systems 4.0 Interpretation/Evaluation
3.1.8 <ul style="list-style-type: none"> Consists information on how to check the nose landing gear wheel fairings. Consists information on the tools required to check the nose landing gear wheel fairings. Consists information on the different types of defects. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position 7.1 Automated Systems	1.3 Test object characteristics 2.6 Automated systems 4.0 Interpretation/Evaluation
3.1.9 <ul style="list-style-type: none"> Consists information on how to inspect the nose gear fork. Consists information on the tools required to inspect the nose gear fork. Consists information on the different types of defects. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position 7.1 Automated Systems	1.3 Test object characteristics 2.6 Automated systems 4.0 Interpretation/Evaluation
3.1.10 <ul style="list-style-type: none"> Consists information on how to inspect the nose gear attachment structure. Consists information on the tools required to inspect the nose gear attachment structure. Consists information on the different types of defects. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
3.1.11 <ul style="list-style-type: none"> Consists information on how to test toe brakes and parking brake. Consists information on the tools required to test toe brakes and parking brake. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.12 <ul style="list-style-type: none"> Consists information on how to check the master cylinder and parking brake mechanism. Consists information on the tools required to check the master cylinder and parking brake mechanism. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.13 <ul style="list-style-type: none"> Consists information on how to check the fluid level and test operation of toe and parking brake. Consists information on the tools required to check the fluid level and test operation of toe and parking brake. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.14 <ul style="list-style-type: none"> Consists information on how to check the rake lines, wheel cylinders, hoses, clamps, fittings and hoses. Consists information on the tools required to check the brake lines, wheel cylinders, hoses, clamps, fittings and hoses. Consists information on the different types of defects. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
3.1.15 <ul style="list-style-type: none"> Consists information on how to check brake lines and hoses. Consists information on the tools required to check brake lines and hoses. 	4.0 Equipment 6.0 Visual testing to specific procedures	4.1 Cleanliness 5.10 Position	1.2.2 Cleanliness 1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.16 <ul style="list-style-type: none"> Consists information on how to check tread wear and general condition of the tires. Consists information on the tools required to check tread wear and general condition of the tires. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.17 <ul style="list-style-type: none"> Consists information on how to check for proper inflation. Consists information on the tools required to check for proper inflation. 	4.0 Equipment 6.0 Visual testing to specific procedures	7.8 Light sources and special lighting	1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.18 <ul style="list-style-type: none"> Consists information on how to inspect the wheels, brake discs, and linings. Consists information on the tools required to inspect the wheels, brake discs, and linings. Consists information on the different types of defects. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	4.0 Interpretation/Evaluation 6.1 Electrical shock
3.1.19 <ul style="list-style-type: none"> Consists information on how to check wheel through-bolts and nuts for looseness. Consists information on the tools required to check wheel through-bolts and nuts for looseness. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
3.1.20 <ul style="list-style-type: none"> Consists information on how to clean, inspect and lube the wheel bearings. Consists information on the tools required to clean, inspect and lube the wheel bearings. 	3.5 Visual perception 4.0 Equipment 6.0 Visual testing to specific procedures	4.1 Cleanliness 6.0 Visual perception	1.2.2 Cleanliness 1.3 Test object characteristics 4.0 Interpretation/Evaluation
3.1.21 <ul style="list-style-type: none"> Consists information on how to check the nose gear steering mechanism. Consists information on the tools required to check the nose gear steering mechanism. Consists information on wear, security, and proper rigging. 	3.5 Visual perception 4.0 Equipment 6.0 Visual testing to specific procedures	7.1 Automated systems	1.3 Test object characteristics 4.0 Interpretation/Evaluation
4.1 <ul style="list-style-type: none"> Consists information on identifying the various types of indications. Consists information on correctly mapping the defect with area. Consists information on indications under special scrutiny. Consists information on the experience required to be familiar with all indication types. Consists information on prototypical information with work cards. Consists information on the correct quality and quantity of lighting required to ensure adequate recognition of indication. Consists information on correct terminologies used for each indication types listed in work card. Consists information on size or severity or severity level rejectable for a particular class of indication. 	2.0 Definitions 3.2 Lighting 3.5 Visual perception 6.1 Selection of parameters 6.3 Classification of indications per acceptance criteria 6.4 Reports and documentation	3.0 Lighting 6.0 Visual perception 9.0 Acceptance/Rejection criteria 10.0 Recording and reports	1.1 Vision and light 1.3 Test object characteristics 4.3 Discontinuity variables affecting test results 4.6 Process for reporting visual discontinuities

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
4.2 <ul style="list-style-type: none"> Consists information on equipments required to measure indication area. Consists information on how to measure the indication area. Consists information on landmarks and work card. Consists information on locating and recognizing correct landmarks. Consists information on measuring graticule. Consists information on units on graticule and those specified in work card. 	4.0 Equipment 6.1.5 Documented procedures 6.3 Classification of indications per acceptance criteria 6.4 Reports and documentation	7.0 Equipment 9.0 Acceptance/ Rejection criteria 10.0 Recording and reports	2.0 Equipment accessories 2.3 Linear measurement 4.4 Determination of dimensions 4.6 Process for reporting visual discontinuities 5.0 Procedures and documentation
4.3 <ul style="list-style-type: none"> Consists information about correct standards. Consists information on how to compare the indication with the standards. Consists information on physical comparison to standards. 	6.2 Test standards/ calibration	9.0 Acceptance/ Rejection criteria	3.9 Requirements

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
5.1 <ul style="list-style-type: none"> Consists information on correctly mapping the location with the defect. Consists information on how to check the defect location appropriately. Consists information on numerical location of data on work card. 	5.0 Employer defined applications 6.0 Visual testing to specific procedures 6.3 Classification of indications per acceptance criteria	9.0 Acceptance / Rejection criteria	5.0 Procedures and documentation
5.2 <ul style="list-style-type: none"> Consists information on equipments required to record defect location. Consists information on how to record the defect location appropriately. 	4.0 Equipment	7. 0 Equipment	2.0 Equipment accessories
5.3 <ul style="list-style-type: none"> Consists information about various defect types. Consists information about how to record the defect type. Consists information on how to comment about defect type. 	4.0 Equipment 6.0 Visual testing to specific procedures 6.4 Reports and documentation	10.0 Recording and reports	1.3 Test object characteristics 4.0 Interpretation/ Evaluation 5.0 Procedures and documentation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
5.4 <ul style="list-style-type: none"> Consists information on how to make a final decision. Consists information about various types of final decisions made for various types of indications. Consists information on the difference between an indication and a standard clearly beyond acceptance limit. 	6.2 Test standards and calibration 6.3 Classification of indications per acceptance criteria	9.0 Acceptance / Rejection criteria	5.0 Procedures and documentation
5.4.1 <ul style="list-style-type: none"> Consists information on how to sign off a work card. 	6.4 Reports and documentation	10.0 Recording and reports	5.0 Procedures and documentation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
6.1 <ul style="list-style-type: none"> Consists information about how to remove equipments and supplies from inspection area. Consists information on the checklist of equipment and supplies to ensure nothing is left in the inspection area. 	4.0 Equipment	7.0 Equipment	2.0 Equipment accessories
6.2 <ul style="list-style-type: none"> Consists information on cleaning the equipment correctly. Consists information on correct cleaning material required. Consists information on training inspectors on correct cleaning procedures. 	3.4 Environmental factors	5.2 Cleanliness	1.2.2 Cleanliness 5.0 Procedures and documentation
6.3 <ul style="list-style-type: none"> Consists information on the correct procedure to return the equipment. Consists information on the correct place to return the equipment. Consists information on how to safely move the support equipment. Consists information on the procedure for safety check of equipment prior to storage. Consists information on signing in and out the equipment correctly. 	3.3 Material attributes	4.0 Material attributes	5.0 Procedures and documentation

Appendix C1

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
1.0 INITIATE INSPECTION											
1.1 Use Documentation to Plan Task											
1.1.1 Read Documentation	X	X			X					Skipped this step. Did not have the work card initially. Referred to the work card when asked to do so.	Consists information on: <ul style="list-style-type: none">Identifying the correct document.Reading the correct information.
1.1.2 Plan task, strategy and mental model	X	X			X					Planned the task appropriately. Planned the search strategy. Created an appropriate mental model.	Consists information on: <ul style="list-style-type: none">tasksstrategiesmental modelsplanning the appropriate taskplanning the appropriate strategycreating appropriate mental models
1.1.3 Learn type, criticality, probability, location of defects	X	X			X					Skipped this step Knew about the location of the defect	Consists information on: <ul style="list-style-type: none">different types of defectscriticality of the defectsprobability of the defectslocation of the defectscorrectly mapping the defects with criticality.correctly mapping the defects with location.
1.1.4 Choose starting points for search	X	X			X					Skipped this step.	Consists information on starting point for search. Consists of steps on correctly choosing the starting point for search.
A: Attention S: Senses P: Perception D: Decision Making M: Memory C: Control F: Feedback O: Others											

	Task Analysis										
TASK DESCRIPTION	A	S	P	D	M	C	F	O	OBSERVATIONS	CONTENT	
1.1.5 Choose search strategy	X	X			X				Did not use any specific instrument to search for defects. Did not have the work card.	Consists information about various search strategies. Consists information on how to choose the appropriate strategy.	
1.2 Assemble Equipment											
1.2.1 Collect supplies, lighting	X	X			X				Moved the workbench closer to the aircraft. Collected the supplies and lighting.	Consists information on tools required for a particular task. Consists information on using the tools and support equipment.	
1.2.2 Collect support equipment	X	X			X				Collected the support equipment.	Consists information about the mirror, magnifying loupe and cleaning cloth. Consists information on how to collect an appropriate mirror. Consists information on how to collect an appropriate magnifying loupe. Consists information on how to collect a cleaning cloth. Consists information about the support equipment required for a particular task. Consists information on substitute equipment if correct equipment is not available.	

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
1.3 Test, Calibrate Equipment											
1.3.1 Check mirror, loupe, cleaning cloth	X	X			X					Skipped this step.	Consists information on how to check the mirror. Consists information on how to check the loupe. Consists information on how to check the cleaning cloth.
1.3.2 Check support equipment	X	X			X					Skipped this step.	Consists information about the support equipment (Boroscope). Consists information on how to check the support equipment (Boroscope). Consists information on how to handle the support equipment.
2.0 ACCESS INSPECTION TASK											
2.1 Locate Task Area	X	X			X						
2.1.1 Locate task area near the aileron.	X	X			X					Located the task area near the aileron.	Consists information on task area. Consists information on locating the correct task area. Consists information on aircraft numerical locations. Consists information on clear landmarks to help define boundaries of an inspection task.

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
2.2 Access Inspection Area											
2.2.1 Move support equipment into place	X	X			X					Moved the workbench into place.	Consists information on adequate access equipment required for performing the task. Consists information on how to move the support equipment to an appropriate place.
2.2.2 Position the aileron trim tab to gain access to push rod aft attached point.	X	X	X							Positioned the aileron trim tab to gain access to push rod aft attached point.	Consists information on how to position the aileron trim tab to gain access to push rod aft attached point.
2.2.3 Remove cotter pin, nut, washer and bolt securing push rod to hinge.	X	X								Removed the cotter pin, nut, washer and bolt securing push rod to hinge.	Consists information on how to remove the cotter pin, nut, washer and bolt securing push rod to hinge.
2.2.4 Position aileron to down position.	X	X								Positioned the aileron to down position.	Consists information on how to position the aileron to down position.
2.2.5 Remove cotter pin, nut, washer and bolt from inboard and outboard hinges.	X	X								Removed the cotter pin, nut, washer and bolt from inboard and outboard hinges.	Consists information on how to remove the cotter pin, nut, washer and bolt from inboard and outboard hinges.
2.2.6 Disconnect bonding jumper located in the outboard hinge area.	X	X	X		X					Disconnected the bonding jumper located in the outboard hinge area.	Consists information on how to disconnect the bonding jumper located in the outboard hinge area.
2.2.7 Pull aileron aft, separating the yoke from the aileron quadrant.	X	X								Pulled the aileron aft, separating the yoke from the aileron quadrant.	Consists information on how to pull the aileron aft, separating the yoke from the aileron quadrant.
A: Attention S: Senses P: Perception D: Decision Making M: Memory C: Control F: Feedback O: Others											

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
4.0 DECISION ON INDICATION											
4.1 Identify Indication Type	X	X	X		X					Identified the indication as a dent.	Consists information on identifying the various types of indications. Consists information on correctly mapping the defect with area. Consists information on indications under special scrutiny. Consists information on experience required to be familiar with all indication types. Consists information on prototypical information with work cards. Consists information on correct quality and quantity of lighting required to ensure adequate recognition of indication. Consists information on correct terminologies used for each indication types listed in work card. Consists information on size or severity or severity level rejectable for a particular class of indication.

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
4.2 Measure Indication Size	X	X	X			X				Measured indication size.	Consists information on equipments required to measure indication area. Consists information on how to measure the indication area. Consists information on landmarks and work card. Consists information on locating and recognizing correct landmarks. Consists information on measuring graticule. Consists information on units of graticule and those specified in work card.
4.3 Compare Indication to Standard	X	X	X							Did not compare the indication to a standard.	Consists information about correct standards. Consists information on how to compare the indication with the standards. Consists information on physical comparison to standards.

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
5.0 RESPOND TO INSPECTION											
5.1 Check Defect Location	X	X								Checked the defect location.	Consists information on correctly mapping the location with the defect. Consists information on how to check the defect location appropriately. Consists information on numerical location of data on work card.
5.2 Record Defect Location	X									Recorded the defect location.	Consists information on equipments required to record defect location. Consists information on how to record the defect location appropriately.
5.3 Record Defect Type, Comments	X									Recorded the defect type.	Consists information about various defect types. Consists information about how to record the defect type. Consists information on how to comment about defect type.
5.4 Final Decision		X	X	X	X					Tagged the aileron. Did not make a decision whether to replace or fix the aileron.	Consists information on how to make a final decision. Consists information about various types of final decisions made for various types of indications. Consists information on the difference between an indication and a standard clearly beyond acceptance limit.
5.4.1 Sign off the work card.										Did not sign the work card	Consists information on how to sign off a work card.
A: Attention S: Senses P: Perception D: Decision Making M: Memory C: Control F: Feedback O: Others											

	Task Analysis										
TASK DESCRIPTION	A	S	P	D	M	C	F	O	OBSERVATIONS	CONTENT	
6.0 RETURN EQUIPMENT TO STORAGE											
6.1 Remove Equipment, Supplies from Inspection Area	X								Removed the equipment, supplies from the inspection area.	Consists information about how to remove equipments and supplies from inspection area. Consists information on checklist of equipment and supplies to ensure nothing is left in the inspection area.	
6.2 Clean Equipment	X								Cleaned the equipment.	Consists information on cleaning the equipment correctly. Consists information on correct cleaning material required. Consists information on training inspectors on correct cleaning procedures.	
6.3 Return Support Equipment to Storage	X								Returned the support equipment to storage.	Consists information on the correct procedure to return the equipment. Consists information on the correct place to return the equipment. Consists information on how to safely move the support equipment. Consists information on the procedure for safety check of equipment prior to storage. Consists information on signing in and out the equipment correctly.	

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

Appendix C2

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.0 INITIATE INSPECTION			
<i>1.1 Use Documentation to Plan Task</i>			
1.1.1 Read Documentation	<p>E1.1.1.1 Does not have the correct documentation (EC1).</p> <p>E1.1.1.2 Does not have the documentation (EC 1).</p> <p>E1.1.1.3 Does read the document incorrectly (EC 6).</p> <p>E1.1.1.4 Does not know how to read the document (EC 5).</p> <p>E1.1.1.5 Does not interpret the document correctly (EC 3).</p>	Does know to locate, read and interpret the correct documentation.	<p>Are the inspectors trained to locate the correct documentation?</p> <p>Are the inspectors trained to read and interpret the correct documentation?</p>

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.1.2 Plan task, strategy and mental model	<p>E1.1.2.1 Does not plan the task (EC 4).</p> <p>E1.1.2.2 Does plan the task incorrectly (EC 4).</p> <p>E1.1.2.3 Does not plan the correct task (EC 4).</p> <p>E1.1.2.4 Does not plan the strategy (EC 4).</p> <p>E1.1.2.5 Does plan the strategy incorrectly (EC 4).</p> <p>E1.1.2.6 Does not plan the correct strategy (EC 4).</p> <p>E1.1.2.7 Does not create a mental model (EC 2).</p> <p>E1.1.2.8 Created a wrong mental model (EC 2).</p> <p>E1.1.2.9 Created a mental model irrelevant to task and strategy (EC 2).</p> <p>E1.1.2.10 Does not know to create a mental model (EC 2).</p>	<p>Does plan the correct task.</p> <p>Does plan the correct strategy.</p> <p>Does form the correct mental model.</p>	<p>Are the inspectors trained to plan the correct task?</p> <p>Are the inspectors trained to plan the correct strategy?</p> <p>Are the inspectors trained to form the correct mental model?</p>

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.1.3 Learn type, criticality, probability, location of defects	<p>E1.1.3.1 Does not know about the different types of defects (EC 1).</p> <p>E1.1.3.2 Does not know all the defects (EC 1).</p> <p>E1.1.3.3 Does not know about the criticality of defects (EC 1).</p> <p>E1.1.3.4 Incorrectly maps the defects with criticality (EC 1).</p> <p>E1.1.3.5 Does not know how often the defects occur (EC 1).</p> <p>E1.1.3.6 Does not know about the location of the defects (EC 1).</p> <p>E1.1.3.7 Incorrectly maps the defects with location (EC 1).</p>	<p>Does know about the different type of defects.</p> <p>Does know the correct mapping of the defects with criticality.</p> <p>Does know the probability of occurrence of defects.</p> <p>Does know the correct location of the defects.</p>	<p>Are the inspectors trained to detect the different types of defects?</p> <p>Are the inspectors trained to map the defects with criticality?</p> <p>Are the inspectors trained to gauge the defect occurrence probability?</p> <p>Are the inspectors trained to locate the defects correctly?</p>
1.1.4 Choose starting points for search	<p>E1.1.4.1 Does not know to select the starting point for search (EC 1).</p> <p>E1.1.4.2 Does not know the starting point for the search (EC 1).</p> <p>E1.1.4.3 Select the wrong starting point for search (EC 6).</p>	<p>Does know the correct starting point for search.</p>	<p>Are the inspectors well versed with how to start a search?</p>

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.1.5 Choose search strategy	<p>E1.1.5.1 Does not know what a search strategy is (EC 1).</p> <p>E1.1.5.2 Does not know to select a search strategy (EC 1).</p> <p>E1.1.5.3 Select the wrong search strategy (EC 6).</p>	Does know the correct search strategy.	Are the inspectors trained to form the correct search strategy?
<i>1.2 Assemble Equipment</i>			
1.2.1 Collect supplies, lighting			
1.2.1.1 Collect mirror	<p>E1.2.1.1.1 Does not collect the mirror (EC 1).</p> <p>E1.2.1.1.2 Does collect the faulty mirror (EC 6).</p>	Does know to collect the appropriate mirror.	Are the inspectors trained to collect the mirror?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.2.1.2 Collect magnifying loupe	<p>E1.2.1.2.1 Does not collect the magnifying loupe (EC 1).</p> <p>E1.2.1.2.2 Does collect the faulty magnifying loupe (EC 6).</p>	Does know to collect the appropriate magnifying loupe	Are the inspectors trained to collect the magnifying loupe?
1.2.1.3 Collect cleaning cloth	E1.2.1.3.1 Does not collect the cleaning cloth (EC 1).	Does know to collect the appropriate magnifying loupe	Are the inspectors trained to collect the cleaning cloth?
1.2.1.4 Collect measuring equipment	<p>E1.2.1.4.1 Does not collect the measuring equipment (EC 1).</p> <p>E1.2.1.4.2 Does collect the faulty measuring equipment (EC 6).</p>	Does know to collect the appropriate magnifying loupe	Are the inspectors trained to collect the measuring equipment?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.2.1.5 Collect support equipment	<p>E1.2.1.5.1 Does not collect the support equipment (EC 1).</p> <p>E1.2.1.5.2 Does collect the faulty support equipment (EC 6).</p>	Does know to collect the appropriate magnifying loupe	Are the inspectors trained to collect the support equipment?
1.2.1.6 Move the workbench closer to the aircraft.	<p>E1.2.1.6.1 Does not know how to move the workbench closer to the aircraft (EC 1).</p> <p>E1.2.1.6.2 Does not move the workbench closer to the aircraft (EC 6).</p>	Does move the workbench closer to the aircraft.	Are the inspectors trained on moving the support equipment closer to the aircraft?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
<i>1.3 Test, Calibrate Equipment</i>			
1.3.1 Check mirror, loupe, cleaning cloth	<p>E1.3.1.1 Does not know how to check mirror (EC 1).</p> <p>E1.3.1.2 Does not check the mirror (EC 1).</p> <p>E1.3.1.3 Does check the mirror incorrectly (EC 6).</p> <p>E1.3.1.4 Does not know how to check loupe (EC 1).</p> <p>E1.3.1.5 Does not check the loupe (EC 1).</p> <p>E1.3.1.6 Does check the loupe incorrectly (EC 6).</p> <p>E1.3.1.7 Does not know how to check cleaning cloth (EC 1).</p> <p>E1.3.1.8 Does not check the cleaning cloth (EC 1).</p> <p>E1.3.1.9 Does check the cleaning cloth incorrectly (EC 6).</p>	<p>Does know how to check the mirror.</p> <p>Does know how to check the loupe.</p> <p>Does know how to check the cleaning cloth.</p>	<p>Are the inspectors trained to check the mirror correctly?</p> <p>Are the inspectors trained to check the loupe correctly?</p> <p>Are the inspectors trained to check the cleaning cloth correctly?</p>

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.3.2 Check support equipment (Boroscope)	<p>E1.3.2.1 Does not know how to check support equipment (Boroscope) (EC 1).</p> <p>E1.3.2.2 Does not check the support equipment (Boroscope) (EC 1).</p> <p>E1.3.2.3 Does check the support equipment (Boroscope) incorrectly (EC 6).</p>	Does know how to check the support equipment (Boroscope)	Are the inspectors trained to check the support equipment correctly?
2.0 ACCESS INSPECTION TASK			
<i>2.1 Locate Task Area</i>			

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
2.1.1 Locate task area near the aileron.	<p>E2.1.1.1 Does not know how to locate task area near the aileron (EC 5).</p> <p>E2.1.1.2 Does not locate the task area near the aileron (EC 6).</p> <p>E2.1.1.3 Does locate the wrong task area near the aileron (EC 6).</p>	Does locate the correct task area near the aileron.	Are the inspectors trained in locating the correct the task area near the aileron?
2.2 Access Inspection Area			
2.2.1 Move support equipment into place	<p>E2.2.1.1 Does not know how to move support equipment into place (EC 5).</p> <p>E2.2.1.2 Does not move support equipment into place (EC 6).</p> <p>E2.2.1.3 Does move the support equipment into inappropriate place (EC 6).</p>	Does move the support equipment into correct place.	Are the inspectors trained on handling the support equipment correctly?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
2.2.2 Position the aileron trim tab to gain access to push rod aft-attached point.	<p>E2.2.2.1 Does not know how to position the aileron trim tab to gain access to push rod aft-attached point (EC 5).</p> <p>E2.2.2.2 Does not position the aileron trim tab to gain access to push rod aft-attached point (EC 6).</p> <p>E2.2.2.2 Positions the aileron trim tab incorrectly (EC 6).</p>	Does position the aileron trim tab to gain access to push rod aft-attached point.	Are the inspectors trained on positioning the aileron trim tab to gain access to push rod aft-attached point correctly?
2.2.3 Remove cotter pin, nut, washer and bolt securing push rod to hinge.	<p>E2.2.3.1 Does not know how to remove cotter pin, nut, washer and bolt securing push rod to hinge (EC 5).</p> <p>E2.2.3.2 Does not remove cotter pin, nut, washer and bolt securing push rod to hinge (EC 6).</p>	Does remove cotter pin, nut, washer and bolt securing push rod to hinge.	Are the inspectors trained on removing cotter pin, nut, washer and bolt securing push rod to hinge?
2.2.4 Position aileron to down position.	<p>E2.2.4.1 Does not know how to position aileron to down position (EC 5).</p> <p>E2.2.4.2 Does not position aileron to down position (EC 6).</p> <p>E2.2.4.3 Positions the aileron to down position incorrectly (EC 6).</p>	Does position the aileron to down position correctly.	Are the inspectors trained on positioning the aileron to down position correctly?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
2.2.5 Remove cotter pin, nut, washer and bolt from inboard and outboard hinges.	<p>E2.2.5.1 Does not know how to remove cotter pin, nut, washer and bolt from inboard and outboard hinges (EC 5).</p> <p>E2.2.5.2 Does not remove cotter pin, nut, washer and bolt from inboard and outboard hinges (EC 6).</p>	Does remove cotter pin, nut, washer and bolt from inboard and outboard hinges.	Are the inspectors trained on removing cotter pin, nut, washer and bolt from inboard and outboard hinges correctly?
2.2.6 Disconnect bonding jumper located in the outboard hinge area.	<p>E2.2.6.1 Does not know how to disconnect bonding jumper located in the outboard hinge area (EC 5).</p> <p>E2.2.6.2 Does not disconnect bonding jumper located in the outboard hinge area (EC 6).</p>	Does disconnect bonding jumper located in the outboard hinge area.	Are the inspectors trained on disconnecting bonding jumper located in the outboard hinge area correctly?
2.2.7 Pull aileron aft, separating the yoke from the aileron quadrant.	<p>E2.2.7.1 Does not know how to pull aileron aft, separating the yoke from the aileron quadrant (EC 5).</p> <p>E2.2.7.2 Does not pull aileron aft, separating the yoke from the aileron quadrant (EC 6).</p>	Does pull aileron aft, separating the yoke from the aileron quadrant.	Are the inspectors trained on pulling aileron aft, separating the yoke from the aileron quadrant correctly?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
4.0 DECISION ON INDICATION			
<i>4.1 Identify Indication Type</i>	<p>E4.1.1 Does not know the correct indication type (EC 5).</p> <p>E4.1.2 Identifies the type of defect incorrectly (EC 6).</p> <p>E4.1.3 Forgets the area where the inspector has originally identified the indication (EC 6).</p> <p>E4.1.4 Interprets the indication type incorrectly (EC 3).</p>	Does identify the correct indication.	Are the inspectors trained in identifying the correct indication type?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
4.2 Measure Indication Size	<p>E4.2.1 Does not know how to measure the indication size (EC 5).</p> <p>E 4.2.2 Does not bring the correct equipment to measure the indication size. (EC 6).</p> <p>E4.2.3 Measures the indication incorrectly (EC 6).</p> <p>E4.2.4 Interprets the measurement of indication size incorrectly (EC 3).</p>	Does measure the indication size correctly.	Are the inspectors trained in measuring the indication size correctly?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
<i>4.3 Compare Indication to Standard</i>	<p>E 4.3.1 Does not know the correct standards (EC 5).</p> <p>E4.3.2 Does not bring the correct standards documentation (EC 6).</p> <p>E4.3.3 Does not know how to compare the indication to standard (EC 5).</p> <p>E4.3.4 Compares the indication to standard incorrectly (EC 6).</p> <p>E4.3.5 Interprets the comparison incorrectly (EC 3).</p>	Does compare the indication to standard correctly.	Are the inspectors trained in comparing the indication to standard correctly?
5.0 RESPOND TO INSPECTION			
<i>5.1 Check Defect Location</i>	<p>E5.1.1 Does not know the correct defect location (EC 5).</p> <p>E5.1.2 Checks the defect location incorrectly (EC 6).</p> <p>E5.1.3 Misses the location where the inspector has originally identified the defect (EC 6).</p>	Does check the defect location correctly.	Are the inspectors trained to check the correct location of defect?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
5.2 <i>Record Defect Location</i>	<p>E5.2.1 Does not know how to record the defect location. (EC 5).</p> <p>E5.2.2 Does not bring the correct equipments to record the defect location. (EC 6).</p> <p>E5.2.3 Records the indication incorrectly (EC 6).</p>	Does record the defect location correctly.	Are the inspectors trained to record the location of defect?
5.3 <i>Record Defect Type, Comments</i>	<p>E5.3.1 Does not know the correct defect type (EC 5).</p> <p>E5.3.2 Records the type of defect incorrectly (EC 6).</p> <p>E5.3.3 Does not know how to record the comments on a particular defect type (EC 5).</p> <p>E5.3.4 Records the comments incorrectly (EC 6).</p>	Does record the defect type and comments correctly.	Are the inspectors trained to record the defect type and comments correctly?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
<i>5.4 Final Decision</i>	E5.4.1 Does not make the correct final decision (EC 6). E5.4.2 Does not know how to make a final decision (EC 5).	Does make the correct final decision.	Are the inspectors trained to make the correct final decision?
5.4.1 Sign off the work card.	E5.4.1.1 Does not know how to sign off the work card (EC 5). E5.4.1.2 Does not bring the correct work card (EC 6). E5.4.1.3 Signs off the work card incorrectly (EC 6).	Does sign off the work card correctly.	Are the inspectors trained on to sign off work card?
6.0 RETURN EQUIPMENT TO STORAGE			
<i>6.1 Remove Equipment, Supplies from Inspection Area</i>	E6.1.1 Does not know to remove the equipments from the inspection area (EC 5). E6.1.2 Does not know to remove supplies from the inspection area (EC 5). E6.1.3 Removes the equipments and supplies from the inspection area incorrectly (EC 6).	Does remove the equipment and supplies from the inspection area correctly.	Are the inspectors trained to remove the equipment and supplies from the inspection area correctly?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
<i>6.2 Clean Equipment</i>	<p>E6.2.1 Does not know how to clean the equipment correctly (EC 5).</p> <p>E6.2.2 Does not bring the correct cleaning equipment (EC 6).</p>	Does clean the equipment correctly.	Are the inspectors trained on cleaning the equipment correctly?
<i>6.3 Return Support Equipment to Storage</i>	<p>E6.3.1 Does not know where to return the support equipment (EC 5).</p> <p>E6.3.2 Does not know the correct procedure to return support equipment (EC 5).</p> <p>E6.3.3 Does not return the support equipment to storage (EC 6).</p>	Does return the support equipment to storage.	Are the inspectors trained on returning the support equipment to the storage?

Appendix C3

Rouse and Rouse Error Classification Scheme

Human Error Classification Scheme proposed by Rouse and Rouse (1983)		
EC 1	Observation of system state	a) Improper rechecking of correct reading b) Erroneous interpretation of correct readings c) Failure to observe sufficient number of variables d) Observation of inappropriate state variables e) Failure to observe any state variable
EC 2	Choice of hypothesis	a) Hypothesis could not cause the value of the state variables observed b) Much more likely causes should be considered first c) Very costly place to start d) Hypothesis does not functionally relate to variables observed
EC 3	Testing of hypothesis	a) Stopped before reaching a conclusion b) Reached wrong conclusion c) Considered and discarded correct conclusion d) Hypothesis not tested
EC 4	Choice of goal	a) Insufficient specification of goal b) Choice of counterproductive or non-productive goal c) Goal not chosen
EC 5	Choice of procedure	a) Choice would not fully achieve goal b) Choice would achieve incorrect goal c) Choice unnecessary for achieving goal d) Procedure not chosen
EC 6	Execution of procedure	a) Required step omitted b) Unnecessary repetition of required step c) Unnecessary step added d) Steps executed in wrong order e) Steps executed too early or too late f) Control in wrong position or range g) Stopped before procedure complete h) Unrelated inappropriate step executed

EC 1 TYPE ERROR	TRAINING NEEDS
<p>E1.1.1.1 Does not have the correct documentation (EC1).</p> <p>E1.1.1.2 Does not have the documentation (EC 1).</p>	<p>Are the inspectors trained to locate the correct documentation?</p>
<p>E1.1.3.1 Does not know about the different types of defects (EC 1).</p> <p>E1.1.3.2 Does not know all the defects (EC 1).</p> <p>E1.1.3.3 Does not know about the criticality of defects (EC 1).</p> <p>E1.1.3.4 Does map the defects with criticality incorrectly (EC 1).</p> <p>E1.1.3.5 Does not know how often the defects occur (EC 1).</p> <p>E1.1.3.6 Does not know about the location of the defects (EC 1).</p> <p>E1.1.3.7 Does map the defects with location incorrectly (EC 1).</p>	<p>Are the inspectors trained to detect the different types of defects?</p> <p>Are the inspectors trained to map the defects with criticality?</p> <p>Are the inspectors trained to determine the probability of the occurring defects?</p> <p>Are the inspectors trained to locate the defects correctly?</p>

EC 1 TYPE ERROR	TRAINING NEEDS
<p>E1.1.4.1 Does not know how to select the starting point for search (EC 1).</p> <p>E1.1.4.2 Does not know the starting point for the search (EC 1).</p>	<p>Are the inspectors well versed with how to start a search?</p>
<p>E1.1.5.1 Does not know what a search strategy is (EC 1).</p> <p>E1.1.5.2 Does not how to select a search strategy (EC 1).</p>	<p>Are the inspectors trained to form the correct search strategy?</p>
<p>E1.2.1.1.1 Does not collect the mirror (EC 1).</p> <p>E1.2.1.2.1 Does not collect the magnifying loupe (EC 1).</p> <p>E1.2.1.3.1 Does not collect the cleaning cloth at the required time (EC 1).</p> <p>E1.2.1.4.1 Does not collect the measuring equipment (EC 1).</p>	<p>Are the inspectors trained on collecting the appropriate equipment?</p>

EC 1 TYPE ERROR	TRAINING NEEDS
E1.2.1.5.1 Does not collect the support equipment (EC 1).	Are the inspectors trained on collecting the appropriate equipment?
E1.2.1.6.1 Does not know how to move the workbench closer to the aircraft (EC 1).	Are the inspectors trained on moving the support equipment closer to the aircraft?
E1.3.1.1 Does not check the mirror (EC 1). E1.3.1.3 Does not check the loupe (EC 1). E1.3.1.5 Does not check the cleaning cloth (EC 1).	Are the inspectors trained to check the mirror correctly? Are the inspectors trained to check the loupe correctly? Are the inspectors trained to check the cleaning cloth correctly?
E1.3.2.1 Does not know how to check support equipment (EC 1). E1.3.2.2 Does not check the support equipment (EC 1).	Are the inspectors trained to check the support equipment correctly?

EC 2 TYPE ERROR	TRAINING NEEDS
<p>E1.1.2.7 Does not create a mental model (EC 2).</p> <p>E1.1.2.8 Created an incorrect mental model (EC 2).</p> <p>E1.1.2.9 Created a mental model irrelevant to task and strategy (EC 2).</p> <p>E1.1.2.10 Does not know how to create a mental model (EC 2).</p>	<p>Are the inspectors trained to form the correct mental model?</p> <p>Are the inspectors trained to plan the correct strategy?</p>

EC 3 TYPE ERROR	TRAINING NEEDS
E1.1.1.5 Does not interpret the document correctly (EC 3).	Are the inspectors trained to read and interpret the correct documentation?
E4.1.4 Interprets the indication type incorrectly (EC 3).	Are the inspectors trained in identifying the correct indication type?
E4.2.4 Interprets the measurement of indication size incorrectly (EC 3).	Are the inspectors trained in measuring the indication size correctly?
E4.3.5 Interprets the comparison incorrectly (EC 3).	Are the inspectors trained in comparing the indication to standard correctly?

EC 4 TYPE ERROR	TRAINING NEEDS
<p>E1.1.2.1 Does not plan the task (EC 4).</p> <p>E1.1.2.2 Does plan the task incorrectly (EC 4).</p> <p>E1.1.2.3 Does not plan the correct task (EC 4).</p> <p>E1.1.2.4 Does not plan the strategy (EC 4).</p> <p>E1.1.2.5 Does plan the strategy incorrectly (EC 4).</p> <p>E1.1.2.6 Does not plan the correct strategy (EC 4).</p>	<p>Are the inspectors trained to form the correct task?</p> <p>Are the inspectors trained to form the correct mental model?</p> <p>Are the inspectors trained to plan the correct strategy?</p>
<p>E1.1.1.4 Does not know how to read the document (EC 5).</p>	<p>Are the inspectors trained to read and interpret the correct documentation?</p>

EC 5 TYPE ERROR	TRAINING NEEDS
E1.1.1.4 Does not know how to read the document (EC 5).	Are the inspectors trained to read and interpret the correct documentation?
E2.1.1.1 Does not know how to locate task area near the aileron (EC 5).	Are the inspectors trained in locating the correct the task area near the aileron?
E2.2.1.1 Does not know how to move support equipment into place (EC 5).	Are the inspectors trained on handling the support equipment correctly?
E2.2.2.1 Does not know how to position the aileron trim tab to gain access to push rod aft-attached point (EC 5).	Are the inspectors trained on positioning the aileron trim tab to gain access to push rod aft-attached point correctly?
E2.2.3.1 Does not know how to remove cotter pin, nut, washer and bolt securing push rod to hinge (EC 5).	Are the inspectors trained on removing cotter pin, nut, washer and bolt securing push rod to hinge?
E2.2.4.1 Does not know how to position aileron to down position (EC 5).	Are the inspectors trained on positioning the aileron to down position correctly?
E2.2.5.1 Does not know how to remove cotter pin, nut, washer and bolt from inboard and outboard hinges (EC 5).	Are the inspectors trained on removing cotter pin, nut, washer and bolt from inboard and outboard hinges correctly?
E2.2.6.1 Does not know how to disconnect bonding jumper located in the outboard hinge area (EC 5).	Are the inspectors trained on disconnecting bonding jumper located in the outboard hinge area correctly?

EC 5 TYPE ERROR	TRAINING NEEDS
E2.2.7.1 Does not know how to pull aileron aft, separating the yoke from the aileron quadrant (EC 5).	Are the inspectors trained on pulling aileron aft, separating the yoke from the aileron quadrant correctly?
E4.1.1 Does not know the correct indication type (EC 5).	Are the inspectors trained in identifying the correct indication type?
E4.2.1 Does not know how to measure the indication size (EC 5).	Are the inspectors trained in measuring the indication size correctly?
E 4.3.1 Does not know the correct standards (EC 5). E4.3.3 Does not know how to compare the indication to standard (EC 5).	Are the inspectors trained in comparing the indication to standard correctly?
E5.1.1 Does not know the correct defect location (EC 5).	Are the inspectors trained to check the correct location of defect?
E5.2.1 Does not know how to record the defect location (EC 5).	Are the inspectors trained to record the location of defect?
E5.3.1 Does not know the correct defect type (EC 5). E5.3.3 Does not know how to record the comments on a particular defect type (EC 5).	Are the inspectors trained to record the defect type and comments correctly?

EC 5 TYPE ERROR	TRAINING NEEDS
E5.4.2 Does not know how to make a final decision (EC 5).	Are the inspectors trained to make the correct final decision?
E5.4.1.1 Does not know how to sign off the work card (EC 5).	Are the inspectors trained on to sign off work card?
E6.1.1 Does not know to remove the equipments from the inspection area (EC 5). E6.1.2 Does not know to remove supplies from the inspection area (EC 5).	Are the inspectors trained to remove the equipment and supplies from the inspection area correctly?
E6.2.1 Does not know how to clean the equipment correctly (EC 5).	Are the inspectors trained on cleaning the equipment correctly?
E6.3.1 Does not know where to return the support equipment (EC 5). E6.3.2 Does not know the correct procedure to return support equipment (EC 5).	Are the inspectors trained on returning the support equipment to the storage?

EC 6 TYPE ERROR	TRAINING NEEDS
E1.1.1.3 Does read the document incorrectly (EC 6).	Are the inspectors trained to read and interpret the correct documentation?
E1.1.4.3 Select the wrong starting point for search (EC 6).	Are the inspectors well versed with how to start a search?
E1.1.5.3 Select the wrong search strategy (EC 6).	Are the inspectors trained to form the correct search strategy?
E1.2.1.1.2 Does collect the faulty mirror (EC 6).	Are the inspectors trained to collect the mirror?
E1.2.1.2.2 Does collect the faulty magnifying loupe (EC 6).	Are the inspectors trained to collect the magnifying loupe?
E1.2.1.4.2 Does collect the faulty measuring equipment (EC 6).	Are the inspectors trained to collect the measuring equipment?
E1.2.1.5.2 Does collect the faulty support equipment (EC 6).	Are the inspectors trained to collect the support equipment?
E1.2.1.6.2 Does not move the workbench closer to the aircraft. (EC 6)	Are the inspectors trained on moving the support equipment closer to the aircraft?
E1.3.1.3 Does check the mirror incorrectly (EC 6). E1.3.1.6 Does check the loupe incorrectly (EC 6). E1.3.1.9 Does check the cleaning cloth incorrectly (EC 6).	Are the inspectors trained to check the mirror correctly? Are the inspectors trained to check the loupe correctly? Are the inspectors trained to check the cleaning cloth correctly?
E1.3.2.3 Does check the support equipment incorrectly (EC 6).	Are the inspectors trained to check the support equipment correctly?

EC 6 TYPE ERROR	TRAINING NEEDS
E2.1.1.2 Does not locate the task area near the aileron (EC 6). E2.1.1.3 Does locate the wrong task area near the aileron (EC 6).	Are the inspectors trained in locating the correct the task area near the aileron?
E2.2.1.2 Does not move support equipment into place (EC 6). E2.2.1.3 Does move the support equipment into inappropriate place (EC 6).	Are the inspectors trained on handling the support equipment correctly?
E2.2.2.2 Does not position the aileron trim tab to gain access to push rod aft-attached point (EC 6). E2.2.2.2 Positions the aileron trim tab incorrectly (EC 6).	Are the inspectors trained on positioning the aileron trim tab to gain access to push rod aft-attached point correctly?
E2.2.3.2 Does not remove cotter pin, nut, washer and bolt securing push rod to hinge (EC 6).	Are the inspectors trained on removing cotter pin, nut, washer and bolt securing push rod to hinge?
E2.2.4.2 Does not position aileron to down position (EC 6). E2.2.4.3 Positions the aileron to down position incorrectly (EC 6).	Are the inspectors trained on positioning the aileron to down position correctly?

EC 6 TYPE ERROR	TRAINING NEEDS
E2.2.5.2 Does not remove cotter pin, nut, washer and bolt from inboard and outboard hinges (EC 6).	Are the inspectors trained on removing cotter pin, nut, washer and bolt from inboard and outboard hinges correctly?
E2.2.6.2 Does not disconnect bonding jumper located in the outboard hinge area (EC 6).	Are the inspectors trained on disconnecting bonding jumper located in the outboard hinge area correctly?
E2.2.7.2 Does not pull aileron aft, separating the yoke from the aileron quadrant (EC 6).	Are the inspectors trained on pulling aileron aft, separating the yoke from the aileron quadrant correctly?

EC 6 TYPE ERROR	TRAINING NEEDS
E4.1.2 Identifies the type of defect incorrectly (EC 6). E4.1.3 Forgets the area where the inspector has originally identified the indication (EC 6).	Are the inspectors trained in identifying the correct indication type?
E 4.2.2 Does not bring the correct equipment to measure the indication size. (EC 6). E4.2.3 Measures the indication incorrectly (EC 6).	Are the inspectors trained in measuring the indication size correctly?
E4.3.2 Does not bring the correct standards documentation (EC 6). E4.3.4 Compares the indication to standard incorrectly (EC 6).	Are the inspectors trained in comparing the indication to standard correctly?
E5.1.2 Checks the defect location incorrectly (EC 6). E5.1.3 Misses the location where the inspector has originally identified the defect (EC 6).	Are the inspectors trained to check the correct location of defect?
E5.2.2 Does not bring the correct equipments to record the defect location (EC 6). E5.2.3 Records the indication incorrectly (EC 6).	Are the inspectors trained to record the location of defect?

EC 6 TYPE ERROR	TRAINING NEEDS
E5.3.2 Records the type of defect incorrectly (EC 6). E5.3.4 Records the comments incorrectly (EC 6).	Are the inspectors trained to record the defect type and comments correctly?
E5.4.1 Does not make the correct final decision (EC 6).	Are the inspectors trained to make the correct final decision?
E5.4.1.2 Does not bring the correct work card (EC 6). E5.4.1.3 Signs off the work card incorrectly (EC 6).	Are the inspectors trained on to sign off work card?
E6.1.3 Removes the equipments and supplies from the inspection area incorrectly (EC 6).	Are the inspectors trained to remove the equipment and supplies from the inspection area correctly?
E6.2.2 Does not bring the correct cleaning equipment (EC 6).	Are the inspectors trained on cleaning the equipment correctly?
E6.3.3 Does not return the support equipment to storage (EC 6).	Are the inspectors trained on returning the support equipment to the storage?

Appendix C4

Training Content	ASNT Specifications			Training Methods	Training Delivery Systems
	Level 1	Level 2	Level 3		
1.1.1 Consists information on: <ul style="list-style-type: none"> Identifying the correct document. Reading the correct information. 	6.1.5 Documented procedures 6.4 Reports and documentation				
1.1.2 Consists information on: <ul style="list-style-type: none"> tasks strategies mental models planning the appropriate task planning the appropriate strategy creating appropriate mental models 	6.1 Selection of Parameters				
1.1.3 Consists information on: <ul style="list-style-type: none"> different types of defects criticality of the defects probability of the defects location of the defects correctly mapping the defects with criticality. correctly mapping the defects with location. 	5.0 Employer defined applications 6.3 Classification of indications per acceptance criteria	9.0 Acceptance / Rejection criteria			

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
1.1.4 <ul style="list-style-type: none"> Consists information on starting point for search. Consists of steps on correctly choosing the starting point for search. 	6.1 Selection of Parameters		
1.1.5 <ul style="list-style-type: none"> Consists information about various search strategies. Consists information on how to choose the appropriate strategy. 	6.1 Selection of Parameters		
1.2.1, 1.2.2 <ul style="list-style-type: none"> Consists information on the tools required for a particular task. Consists information on using the tools and support equipment. Consists information about the mirror, magnifying loupe and cleaning cloth. Consists information on how to collect an appropriate mirror. Consists information on how to collect an appropriate magnifying loupe. Consists information on how to collect a cleaning cloth. Consists information about the support equipment required for a particular task. Consists information on substitute equipment if correct equipment is not available. 	4.0 Equipment		2.0 Equipment Accessories

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
1.3.1 <ul style="list-style-type: none"> Consists information on how to check the mirror. Consists information on how to check the loupe. Consists information on how to check the cleaning cloth. 	3.3 Material Attributes 4.0 Equipment	4.0 Material Attributes	
1.3.2 <ul style="list-style-type: none"> Consists information about the support equipment (Boroscope). Consists information on how to check the support equipment (Boroscope). Consists information on how to handle the support equipment. 	3.3 Material Attributes 4.0 Equipment	4.0 Material Attributes	
2.1.1 <ul style="list-style-type: none"> Consists information on task area. Consists information on locating the correct task area. Consists information on aircraft numerical locations. Consists information on clear landmarks to help define boundaries of the inspection task. 	6.1 Selection of parameters	6.0 Visual perception	
2.2.1 <ul style="list-style-type: none"> Consists information on adequate access equipment required for performing the task. Consists information on how to move the support equipment to appropriate place. 	3.3 Material Attributes 4.0 Equipment	4.0 Material Attributes	
2.2.2 <ul style="list-style-type: none"> Consists information on how to position the aileron trim tab to gain access to push rod aft attached point. 	3.3 Material Attributes 4.0 Equipment	4.0 Material Attributes	

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
2.2.3 <ul style="list-style-type: none"> Consists information on how to remove the cotter pin, nut, washer and bolt securing push rod to hinge. 	3.3 Material Attributes 4.0 Equipment	4.0 Material Attributes	
2.2.4 <ul style="list-style-type: none"> Consists information on how to position the aileron to down position 	3.0 Fundamentals 4.0 Equipment	5.10 Position 4.0 Material Attributes	2.0 Equipment accessories
2.2.5 <ul style="list-style-type: none"> Consists information on how to remove the cotter pin, nut, washer and bolt from inboard and outboard hinges 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation
2.2.6 <ul style="list-style-type: none"> Consists information on how to disconnect the bonding jumper located in the outboard hinge area. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation
2.2.7 <ul style="list-style-type: none"> Consists information on how to pull the aileron aft, separating the yoke from the aileron quadrant. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
4.1 <ul style="list-style-type: none"> Consists information on identifying the various types of indications. Consists information on correctly mapping the defect with area. Consists information on indications under special scrutiny. Consists information on experience required to be familiar with all indication types. Consists information on prototypical information with work cards. Consists information on correct quality and quantity of lighting required to ensure adequate recognition of indication. Consists information on correct terminologies used for each indication types listed in work card. Consists information on size or severity or severity level rejectable for a particular class of indication. 	2.0 Definitions 3.2 Lighting 3.5 Visual perception 6.1 Selection of parameters 6.3 Classification of indications per acceptance criteria 6.4 Reports and documentation	3.0 Lighting 6.0 Visual perception 9.0 Acceptance/ Rejection criteria 10.0 Recording and reports	1.1 Vision and light 1.3 Test object characteristics 4.3 Discontinuity variables affecting test results 4.6 Process for reporting visual discontinuities
4.2 <ul style="list-style-type: none"> Consists information on the equipments required to measure indication area. Consists information on how to measure the indication area. Consists information on landmarks and work card. Consists information on locating and recognizing correct landmarks. Consists information on measuring graticule. Consists information on units of graticule and those specified in work card. 	4.0 Equipment 6.1.5 Documented procedures 6.3 Classification of indications per acceptance criteria 6.4 Reports and documentation	7.0 Equipment 9.0 Acceptance/ Rejection criteria 10.0 Recording and reports	2.0 Equipment accessories 2.3 Linear measurement 4.4 Determination of dimensions 4.6 Process for reporting visual discontinuities 5.0 Procedures and documentation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
4.3 <ul style="list-style-type: none"> Consists information about correct standards. Consists information on how to compare the indication with the standards. Consists information on physical comparison to standards. 	6.2 Test standards/ calibration	9.0 Acceptance/ Rejection criteria	3.9 Requirements
5.1 <ul style="list-style-type: none"> Consists information on correctly mapping the location with the defect. Consists information on how to check the defect location appropriately. Consists information on numerical location of data on work card. 	5.0 Employer defined applications 6.0 Visual testing to specific procedures 6.3 Classification of indications per acceptance criteria	9.0 Acceptance / Rejection criteria	5.0 Procedures and documentation
5.2 <ul style="list-style-type: none"> Consists information on equipments required to record defect location. Consists information on how to record the defect location appropriately. 	4.0 Equipment	7. 0 Equipment	2.0 Equipment accessories
5.3 <ul style="list-style-type: none"> Consists information about various defect types. Consists information about how to record the defect type. Consists information on how to comment about defect type. 	4.0 Equipment 6.0 Visual testing to specific procedures 6.4 Reports and documentation	10.0 Recording and reports	1.3 Test object characteristics 4.0 Interpretation/ Evaluation 5.0 Procedures and documentation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
5.4 <ul style="list-style-type: none"> Consists information on how to make a final decision. Consists information about various types of final decisions made for various types of indications. Consists information on the difference between an indication and a standard clearly beyond acceptance limit. 	6.2 Test standards and calibration 6.3 Classification of indications per acceptance criteria	9.0 Acceptance / Rejection criteria	5.0 Procedures and documentation
5.4.1 <ul style="list-style-type: none"> Consists information on how to sign off a work card. 	6.4 Reports and documentation	10.0 Recording and reports	5.0 Procedures and documentation
6.1 <ul style="list-style-type: none"> Consists information about how to remove equipments and supplies from inspection area. Consists information on checklist of equipment and supplies to ensure nothing is left in the inspection area. 	4.0 Equipment	7.0 Equipment	2.0 Equipment accessories
6.2 <ul style="list-style-type: none"> Consists information on cleaning the equipment correctly. Consists information on correct cleaning material required. Consists information on training inspectors on correct cleaning procedures. 	3.4 Environmental factors	5.2 Cleanliness	1.2.2 Cleanliness 5.0 Procedures and documentation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
6.3 <ul style="list-style-type: none"> • Consists information on the correct procedure to return the equipment. • Consists information on the correct place to return the equipment. • Consists information on how to safely move the support equipment. • Consists information on the procedure for safety check of equipment prior to storage. • Consists information on signing in and out the equipment correctly. 	3.3 Material attributes	4.0 Material attributes	5.0 Procedures and documentation

Appendix D1

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
1.0 INITIATE INSPECTION											
1.1 Use Documentation to Plan Task											
1.1.1 Read Documentation	X	X			X					Skipped this step. Did not have the work card initially. Referred to the work card when asked to do so.	Consists information on: <ul style="list-style-type: none">Identifying the correct document.Reading the correct information.
1.1.2 Plan task, strategy and mental model	X	X			X					Planned the task appropriately. Planned the search strategy. Created an appropriate mental model.	Consists information on: <ul style="list-style-type: none">tasksstrategiesmental modelsplanning the appropriate taskplanning the appropriate strategycreating appropriate mental models
1.1.3 Learn type, criticality, probability, location of defects	X	X			X					Skipped this step Knew about the location of the defect	Consists information on: <ul style="list-style-type: none">different types of defectscriticality of the defectsprobability of the defectslocation of the defectscorrectly mapping the defects with criticality.correctly mapping the defects with location.
1.1.4 Choose starting points for search	X	X			X					Skipped this step.	Consists information on starting point for search. Consists of steps on correctly choosing the starting point for search.
Task Analysis											
A: Attention S: Senses P: Perception D: Decision Making M: Memory C: Control F: Feedback O: Others											

TASK DESCRIPTION	A	S	P	D	M	C	F	O	OBSERVATIONS	CONTENT
1.1.5 Choose search strategy	X	X			X				Did not use any specific instrument to search for defects. Did not have the work card.	Consists information about various search strategies. Consists information on how to choose the appropriate strategy.
<i>1.2 Assemble Equipment</i>										
1.2.1 Collect supplies, lighting	X	X			X				Moved the workbench closer to the aircraft. Collected the supplies and lighting.	Consists information on tools required for a particular task. Consists information on using the tools and support equipment.
1.2.2 Collect support equipment	X	X			X				Collected the support equipment.	Consists information about the mirror, magnifying loupe and cleaning cloth. Consists information on how to collect an appropriate mirror. Consists information on how to collect an appropriate magnifying loupe. Consists information on how to collect a cleaning cloth. Consists information about the support equipment required for a particular task. Consists information on substitute equipment if correct equipment is not available.

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

	Task Analysis										
TASK DESCRIPTION	A	S	P	D	M	C	F	O	OBSERVATIONS	CONTENT	
1.3 Test, Calibrate Equipment											
1.3.1 Check mirror, loupe, cleaning cloth	X	X			X				Skipped this step.	Consists information on how to check the mirror. Consists information on how to check the loupe. Consists information on how to check the cleaning cloth.	
1.3.2 Check the support equipment	X	X			X				Skipped this step.	Consists information about the support equipment (Boroscope). Consists information on how to check the support equipment (Boroscope). Consists information on how to handle the support equipment.	
2.0 ACCESS INSPECTION TASK											
2.1 Locate Task Area	X	X			X						
2.1.1 Locate task area near the elevator.	X	X			X				Located the task area near the elevator.	Consists information on task area. Consists information on locating the correct task area. Consists information on aircraft numerical locations. Consists information on clear landmarks to help define boundaries of an inspection task.	

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
2.2 Access Inspection Area											
2.2.1 Move support equipment into place	X	X			X					Moved the workbench into place.	Consists information on adequate access equipment required for performing the task. Consists information on how to move the support equipment to an appropriate place.
2.2.2 Remove stinger, horizontal stabilizer fairings and trailing edge assembly exposing torque tube.	X				X			X		Removed the stinger, horizontal stabilizer fairings and trailing edge assembly exposing torque tube. Was not able to identify the parts by name.	Consists information on how to remove the stinger, horizontal stabilizer fairings and trailing edge assembly exposing the torque tube.
2.2.3 Remove cotter pins, nuts, washers and bolts attaching push-pull tubes at trim tab actuator.	X				X			X		Removed cotter pins, nuts, washers and bolts attaching push-pull tubes at trim tab actuator.	Consists information on how to remove cotter pins, nuts, washers and bolts attaching push-pull tubes at trim tab actuator
2.2.4 Mark bolts for re-installation in the same push-pull tubes.	X				X		X			Marked the bolts for re-installation in the same push-pull tubes.	Consists information on how to mark the bolts for re-installation in the same push-pull tubes
2.2.5 Disconnect torque tube from elevator hom by removing nuts, washers and bolts.	X	X	X		X					Disconnected torque tube from elevator hom by removing nuts, washers and bolts.	Consists information on how to disconnect the torque tube from elevator hom by removing nuts, washers and bolts.
2.2.6 Disconnect bonding jumper from horizontal stabilizer by removing the screw.	X	X	X		X					Disconnected bonding jumper from horizontal stabilizer by removing the screw.	Consists information on how to disconnect bonding jumper from horizontal stabilizer by removing the screw.

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

	Task Analysis										
TASK DESCRIPTION	A	S	P	D	M	C	F	O	OBSERVATIONS	CONTENT	
2.2.7 Support the elevator and remove cotter pins, nuts, washers and bolts securing elevator to horizontal stabilizer.	X	X							Supported the elevator and removed cotter pins, nuts, washers and bolts securing the elevator to horizontal stabilizer.	Consists information on how to support the elevator and removal of cotter pins, nuts, washers and bolts securing the elevator to horizontal stabilizer	
2.2.8 Remove the elevator by pulling aft.	X	X							Removed the elevator by pulling aft.	Consists information on how to remove the elevator by pulling the aft.	

A: Attention	S: Senses	P: Perception	D: Decision Making	M: Memory	C: Control	F: Feedback	O: Others
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TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
4.0 DECISION ON INDICATION											
4.1 Identify Indication Type	X	X	X		X					Identified the indication as a crack.	Consists information on identifying the various types of indications. Consists information on correctly mapping the defect with area. Consists information on indications under special scrutiny. Consists information on experience required to be familiar with all indication types. Consists information on prototypical information with work cards. Consists information on correct quality and quantity of lighting required to ensure adequate recognition of indication. Consists information on correct terminologies used for each indication types listed in work card. Consists information on size or severity or severity level rejectable for a particular class of indication.
A: Attention S: Senses P: Perception D: Decision Making M: Memory C: Control F: Feedback O: Others											

	Task Analysis										
TASK DESCRIPTION	A	S	P	D	M	C	F	O	OBSERVATIONS	CONTENT	
4.2 Measure Indication Size	X	X	X			X			Measured indication size.	Consists information on equipments required to measure indication area. Consists information on how to measure the indication area. Consists information on landmarks and work card. Consists information on locating and recognizing correct landmarks. Consists information on measuring graticule. Consists information on units on graticule and those specified in work card.	
4.3 Compare Indication to Standard	X	X	X						Compared the indication to a standard.	Consists information about correct standards. Consists information on how to compare the indication with the standards. Consists information on physical comparison to standards.	

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

TASK DESCRIPTION	Task Analysis									OBSERVATIONS	CONTENT
	A	S	P	D	M	C	F	O			
5.0 RESPOND TO INSPECTION											
5.1 Check Defect Location	X	X								Checked the defect location.	Consists information on correctly mapping the location with the defect. Consists information on how to check the defect location appropriately. Consists information on numerical location of data on work card.
5.2 Record Defect Location	X									Recorded the defect location.	Consists information on equipments required to record defect location. Consists information on how to record the defect location appropriately.
5.3 Record Defect Type, Comments	X									Recorded the defect type.	Consists information about various defect types. Consists information about how to record the defect type. Consists information on how to comment about defect type.
5.4 Final Decision		X	X	X	X					Tagged the elevator. Did not make a decision whether to replace or fix the elevator because of the size and location of the defect.	Consists information on how to make a final decision. Consists information about various types of final decisions made for various types of indications. Consists information on the difference between an indication and a standard clearly beyond acceptance limit.
5.4.1 Sign off the work card.										Did not sign the work card	Consists information on how to sign off a work card.
A: Attention S: Senses P: Perception D: Decision Making M: Memory C: Control F: Feedback O: Others											

	Task Analysis										
TASK DESCRIPTION	A	S	P	D	M	C	F	O	OBSERVATIONS	CONTENT	
6.0 RETURN EQUIPMENT TO STORAGE											
6.1 Remove Equipment, Supplies from Inspection Area	X								Removed the equipment, supplies from the inspection area.	Consists information about how to remove equipments and supplies from inspection area. Consists information on checklist of equipment and supplies to ensure nothing is left in the inspection area.	
6.2 Clean Equipment	X								Cleaned the equipment.	Consists information on cleaning the equipment correctly. Consists information on correct cleaning material required. Consists information on training inspectors on correct cleaning procedures.	
6.3 Return Support Equipment to Storage	X								Returned the support equipment to storage.	Consists information on the correct procedure to return the equipment. Consists information on the correct place to return the equipment. Consists information on how to safely move the support equipment. Consists information on the procedure for safety check of equipment prior to storage. Consists information on signing in and out the equipment correctly.	

A: Attention

S: Senses

P: Perception

D: Decision Making

M: Memory

C: Control

F: Feedback

O: Others

Appendix D2

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.0 INITIATE INSPECTION			
<i>1.1 Use Documentation to Plan Task</i>			
1.1.1 Read Documentation	<p>E1.1.1.1 Does not have the correct documentation (EC1).</p> <p>E1.1.1.2 Does not have the documentation (EC 1).</p> <p>E1.1.1.3 Does read the document incorrectly (EC 6).</p> <p>E1.1.1.4 Does not know how to read the document (EC 5).</p> <p>E1.1.1.5 Does not interpret the document correctly (EC 3).</p>	Does know to locate, read and interpret the correct documentation.	<p>Are the inspectors trained to locate the correct documentation?</p> <p>Are the inspectors trained to read and interpret the correct documentation?</p>

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.1.2 Plan task, strategy and mental model	<p>E1.1.2.1 Does not plan the task (EC 4).</p> <p>E1.1.2.2 Does plan the task incorrectly (EC 4).</p> <p>E1.1.2.3 Does not plan the correct task (EC 4).</p> <p>E1.1.2.4 Does not plan the strategy (EC 4).</p> <p>E1.1.2.5 Does plan the strategy incorrectly (EC 4).</p> <p>E1.1.2.6 Does not plan the correct strategy (EC 4).</p> <p>E1.1.2.7 Does not create a mental model (EC 2).</p> <p>E1.1.2.8 Created a wrong mental model (EC 2).</p> <p>E1.1.2.9 Created a mental model irrelevant to task and strategy (EC 2).</p> <p>E1.1.2.10 Does not know to create a mental model (EC 2).</p>	<p>Does plan the correct task.</p> <p>Does plan the correct strategy.</p> <p>Does form the correct mental model.</p>	<p>Are the inspectors trained to plan the correct task?</p> <p>Are the inspectors trained to plan the correct strategy?</p> <p>Are the inspectors trained to form the correct mental model?</p>

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.1.3 Learn type, criticality, probability, location of defects	<p>E1.1.3.1 Does not know about the different types of defects (EC 1).</p> <p>E1.1.3.2 Does not know all the defects (EC 1).</p> <p>E1.1.3.3 Does not know about the criticality of defects (EC 1).</p> <p>E1.1.3.4 Incorrectly maps the defects with criticality (EC 1).</p> <p>E1.1.3.5 Does not know how often the defects occur (EC 1).</p> <p>E1.1.3.6 Does not know about the location of the defects (EC 1).</p> <p>E1.1.3.7 Incorrectly maps the defects with location (EC 1).</p>	<p>Does know about the different type of defects.</p> <p>Does know the correct mapping of the defects with criticality.</p> <p>Does know the probability of occurrence of defects.</p> <p>Does know the correct location of the defects.</p>	<p>Are the inspectors trained to detect the different types of defects?</p> <p>Are the inspectors trained to map the defects with criticality?</p> <p>Are the inspectors trained to gauge the defect occurrence probability?</p> <p>Are the inspectors trained to locate the defects correctly?</p>
1.1.4 Choose starting points for search	<p>E1.1.4.1 Does not know to select the starting point for search (EC 1).</p> <p>E1.1.4.2 Does not know the starting point for the search (EC 1).</p> <p>E1.1.4.3 Select the wrong starting point for search (EC 6).</p>	<p>Does know the correct starting point for search.</p>	<p>Are the inspectors well versed with how to start a search?</p>

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.1.5 Choose search strategy	<p>E1.1.5.1 Does not know what a search strategy is (EC 1).</p> <p>E1.1.5.2 Does not know to select a search strategy (EC 1).</p> <p>E1.1.5.3 Select the wrong search strategy (EC 6).</p>	Does know the correct search strategy.	Are the inspectors trained to form the correct search strategy?
<i>1.2 Assemble Equipment</i>			
1.2.1 Collect supplies, lighting			
1.2.1.1 Collect mirror	<p>E1.2.1.1.1 Does not collect the mirror (EC 1).</p> <p>E1.2.1.1.2 Does collect the faulty mirror (EC 6).</p>	Does know to collect the appropriate mirror.	Are the inspectors trained to collect the mirror?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.2.1.2 Collect magnifying loupe	E1.2.1.2.1 Does not collect the magnifying loupe (EC 1). E1.2.1.2.2 Does collect the faulty magnifying loupe (EC 6).	Does know to collect the appropriate magnifying loupe	Are the inspectors trained to collect the magnifying loupe?
1.2.1.3 Collect cleaning cloth	E1.2.1.3.1 Does not collect the cleaning cloth (EC 1).	Does know to collect the appropriate magnifying loupe	Are the inspectors trained to collect the cleaning cloth?
1.2.1.4 Collect measuring equipment	E1.2.1.4.1 Does not collect the measuring equipment (EC 1). E1.2.1.4.2 Does collect the faulty measuring equipment (EC 6).	Does know to collect the appropriate magnifying loupe	Are the inspectors trained to collect the measuring equipment?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.2.1.5 Collect support equipment	<p>E1.2.1.5.1 Does not collect the support equipment (EC 1).</p> <p>E1.2.1.5.2 Does collect the faulty support equipment (EC 6).</p>	Does know to collect the appropriate magnifying loupe	Are the inspectors trained to collect the support equipment?
1.2.1.6 Move the workbench closer to the aircraft.	<p>E1.2.1.6.1 Does not know how to move the workbench closer to the aircraft (EC 1).</p> <p>E1.2.1.6.2 Does not move the workbench closer to the aircraft (EC 6).</p>	Does move the workbench closer to the aircraft.	Are the inspectors trained on moving the support equipment closer to the aircraft?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
<i>1.3 Test, Calibrate Equipment</i>			
1.3.1 Check mirror, loupe, cleaning cloth	<p>E1.3.1.1 Does not know how to check mirror (EC 1).</p> <p>E1.3.1.2 Does not check the mirror (EC 1).</p> <p>E1.3.1.3 Does check the mirror incorrectly (EC 6).</p> <p>E1.3.1.4 Does not know how to check loupe (EC 1).</p> <p>E1.3.1.5 Does not check the loupe (EC 1).</p> <p>E1.3.1.6 Does check the loupe incorrectly (EC 6).</p> <p>E1.3.1.7 Does not know how to check cleaning cloth (EC 1).</p> <p>E1.3.1.8 Does not check the cleaning cloth (EC 1).</p> <p>E1.3.1.9 Does check the cleaning cloth incorrectly (EC 6).</p>	<p>Does know how to check the mirror.</p> <p>Does know how to check the loupe.</p> <p>Does know how to check the cleaning cloth.</p>	<p>Are the inspectors trained to check the mirror correctly?</p> <p>Are the inspectors trained to check the loupe correctly?</p> <p>Are the inspectors trained to check the cleaning cloth correctly?</p>

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
1.3.2 Check support equipment (Boroscope)	<p>E1.3.2.1 Does not know how to check support equipment (Boroscope) (EC 1).</p> <p>E1.3.2.2 Does not check the support equipment (Boroscope) (EC 1).</p> <p>E1.3.2.3 Does check the support equipment (Boroscope) incorrectly (EC 6).</p>	Does know how to check the support equipment (Boroscope)	Are the inspectors trained to check the support equipment correctly?
2.0 ACCESS INSPECTION TASK			
<i>2.1 Locate Task Area</i>			

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
2.1.1 Locate task area near the elevator.	<p>E2.1.1.1 Does not know how to locate task area near the elevator (EC 5).</p> <p>E2.1.1.2 Does not locate the task area near the elevator (EC 6).</p> <p>E2.1.1.3 Locates the wrong task near the elevator (EC 6).</p>	Does locate task area near the elevator.	Are the inspectors trained on locating the task area near the elevator?
2.2 Access <i>Inspection Area</i>			

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
2.2.1 Move support equipment into place	<p>E2.2.1.1 Does not know how to move support equipment into place (EC 5).</p> <p>E2.2.1.2 Does not move support equipment into place (EC 6).</p> <p>E2.2.1.3 Does move the support equipment into inappropriate place (EC 6).</p>	Does move the support equipment into correct place.	Are the inspectors trained on handling the support equipment correctly?
2.2.2 Remove stinger, horizontal stabilizer fairings and trailing edge assembly exposing torque tube.	<p>E2.2.2.1 Does not know how to remove stinger, horizontal stabilizer fairings and trailing edge assembly (EC 5).</p> <p>E2.2.2.2 Does not remove stinger, horizontal stabilizer fairings and trailing edge assembly (EC 6).</p>	Does remove the stinger, horizontal stabilizer fairings and trailing edge assembly exposing torque tube.	Are the inspectors trained on how to expose torque tubes by removing stinger, horizontal stabilizer fairings and trailing edge assembly?
2.2.3 Remove cotter pins, nuts, washers and bolts attaching push-pull tubes at trim tab actuator.	<p>E2.2.3.1 Does not know how to remove cotter pins, nuts, washers and bolts attaching push-pull tubes (EC 5).</p> <p>E2.2.3.2 Does not remove cotter pins, nuts, washers and bolts attaching push-pull tubes (EC 6).</p>	Does not remove cotter pins, nuts, washers and bolts attaching push-pull tubes.	Are the inspectors trained on removing cotter pins, nuts, washers and bolts attaching push-pull types at trim lab actuator?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
2.2.4 Mark bolts for re-installation in the same push-pull tubes.	<p>E2.2.4.1 Does not know how to mark bolts for re-installation in the same push-pull tubes (EC 5).</p> <p>E2.2.4.2 Does not mark bolts for re-installation in the same push-pull tubes (EC 6).</p> <p>E2.2.4.3 Marks the bolts incorrectly (EC 6).</p> <p>E2.2.4.5 Does not know how to interpret the right bolts for marking appropriately (EC 3).</p>	Does mark the bolts for re-installation in the same push-pull tubes.	Are the inspectors trained on marking the bolts for re-installation in the same push-pull tubes?
2.2.5 Disconnect torque tube from elevator hom by removing nuts, washers and bolts.	<p>E2.2.5.1 Does not know how to disconnect torque tube from elevator hom (EC 5).</p> <p>E2.2.5.2 Does not disconnect torque tube from elevator hom (EC 6).</p> <p>E2.2.5.3 Disconnects the torque tube from elevator hom incorrectly (EC 6).</p>	Does disconnect torque tube from elevator hom by removing nuts, washers and bolts.	Are the inspectors trained on disconnecting torque tube from elevator hom by removing nuts, washers and bolts?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
2.2.6 Disconnect bonding jumper from horizontal stabilizer by removing screw.	<p>E2.2.6.1 Does not know how to disconnect bonding jumper from horizontal stabilizer (EC 5).</p> <p>E2.2.6.2 Does not disconnect bonding jumper from horizontal stabilizer (EC 6).</p> <p>E2.2.6.3 Disconnects bonding jumper from horizontal stabilizer incorrectly (EC 6).</p>	Does disconnect bonding jumper from horizontal stabilizer by removing screw.	Are the inspectors trained on disconnecting bonding jumper from horizontal stabilizer by removing screw?
2.2.7 Support the elevator and remove cotter pins, nuts, washers and bolts securing elevator to horizontal stabilizer.	<p>E2.2.7.1 Does not know how to support the elevator and remove cotter pins, nuts, washers and bolts securing elevator to horizontal stabilizer (EC 5).</p> <p>E2.2.7.2 Does not support the elevator and remove cotter pins, nuts, washers and bolts securing elevator to horizontal stabilizer (EC 6).</p> <p>E2.2.7.3 Supports the elevator and remove cotter pins, nuts, washers and bolts securing elevator to horizontal stabilizer incorrectly (EC 6).</p>	Does support the elevator and remove cotter pins, nuts, washers and bolts securing elevator to horizontal stabilizer.	Are the inspectors trained on supporting torque tube from elevator hom by removing nuts, washers and bolts?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
2.2.8 Remove the elevator by pulling aft.	<p>E2.2.8.1 Does not know how to remove the elevator by pulling aft (EC 5)</p> <p>E2.2.8.2 Does not remove the elevator by pulling aft (EC 6).</p> <p>E2.2.8.3 Does remove the elevator by pulling aft incorrectly (EC 6).</p>	Does remove the elevator by pulling aft.	Are the inspectors trained on removing the elevator by pulling aft?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
4.0 DECISION ON INDICATION			
<i>4.1 Identify Indication Type</i>	<p>E4.1.1 Does not know the correct indication type (EC 5).</p> <p>E4.1.2 Identifies the type of defect incorrectly (EC 6).</p> <p>E4.1.3 Forgets the area where the inspector has originally identified the indication (EC 6).</p> <p>E4.1.4 Interprets the indication type incorrectly (EC 3).</p>	Does identify the correct indication.	Are the inspectors trained in identifying the correct indication type?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
4.2 Measure Indication Size	<p>E4.2.1 Does not know how to measure the indication size (EC 5).</p> <p>E 4.2.2 Does not bring the correct equipment to measure the indication size. (EC 6).</p> <p>E4.2.3 Measures the indication incorrectly (EC 6).</p> <p>E4.2.4 Interprets the measurement of indication size incorrectly (EC 3).</p>	Does measure the indication size correctly.	Are the inspectors trained in measuring the indication size correctly?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
<i>4.3 Compare Indication to Standard</i>	<p>E 4.3.1 Does not know the correct standards (EC 5).</p> <p>E4.3.2 Does not bring the correct standards documentation (EC 6).</p> <p>E4.3.3 Does not know how to compare the indication to standard (EC 5).</p> <p>E4.3.4 Compares the indication to standard incorrectly (EC 6).</p> <p>E4.3.5 Interprets the comparison incorrectly (EC 3).</p>	Does compare the indication to standard correctly.	Are the inspectors trained in comparing the indication to standard correctly?
5.0 RESPOND TO INSPECTION			
<i>5.1 Check Defect Location</i>	<p>E5.1.1 Does not know the correct defect location (EC 5).</p> <p>E5.1.2 Checks the defect location incorrectly (EC 6).</p> <p>E5.1.3 Misses the location where the inspector has originally identified the defect (EC 6).</p>	Does check the defect location correctly.	Are the inspectors trained to check the correct location of defect?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
5.2 <i>Record Defect Location</i>	<p>E5.2.1 Does not know how to record the defect location. (EC 5).</p> <p>E5.2.2 Does not bring the correct equipments to record the defect location. (EC 6).</p> <p>E5.2.3 Records the indication incorrectly (EC 6).</p>	Does record the defect location correctly.	Are the inspectors trained to record the location of defect?
5.3 <i>Record Defect Type, Comments</i>	<p>E5.3.1 Does not know the correct defect type (EC 5).</p> <p>E5.3.2 Records the type of defect incorrectly (EC 6).</p> <p>E5.3.3 Does not know how to record the comments on a particular defect type (EC 5).</p> <p>E5.3.4 Records the comments incorrectly (EC 6).</p>	Does record the defect type and comments correctly.	Are the inspectors trained to record the defect type and comments correctly?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
<i>5.4 Final Decision</i>	E5.4.1 Does not make the correct final decision (EC 6). E5.4.2 Does not know how to make a final decision (EC 5).	Does make the correct final decision.	Are the inspectors trained to make the correct final decision?
5.4.1 Sign off the work card.	E5.4.1.1 Does not know how to sign off the work card (EC 5). E5.4.1.2 Does not bring the correct work card (EC 6). E5.4.1.3 Signs off the work card incorrectly (EC 6).	Does sign off the work card correctly.	Are the inspectors trained on to sign off work card?
6.0 RETURN EQUIPMENT TO STORAGE			
<i>6.1 Remove Equipment, Supplies from Inspection Area</i>	E6.1.1 Does not know to remove the equipments from the inspection area (EC 5). E6.1.2 Does not know to remove supplies from the inspection area (EC 5). E6.1.3 Removes the equipments and supplies from the inspection area incorrectly (EC 6).	Does remove the equipment and supplies from the inspection area correctly.	Are the inspectors trained to remove the equipment and supplies from the inspection area correctly?

TASK DESCRIPTION	ERRORS	OUTCOME	TRAINING NEEDS
<i>6.2 Clean Equipment</i>	<p>E6.2.1 Does not know how to clean the equipment correctly (EC 5).</p> <p>E6.2.2 Does not bring the correct cleaning equipment (EC 6).</p>	Does clean the equipment correctly.	Are the inspectors trained on cleaning the equipment correctly?
<i>6.3 Return Support Equipment to Storage</i>	<p>E6.3.1 Does not know where to return the support equipment (EC 5).</p> <p>E6.3.2 Does not know the correct procedure to return support equipment (EC 5).</p> <p>E6.3.3 Does not return the support equipment to storage (EC 6).</p>	Does return the support equipment to storage.	Are the inspectors trained on returning the support equipment to the storage?

Appendix D3

EC 1 TYPE ERROR	TRAINING NEEDS
<p>E1.1.1.1 Does not have the correct documentation (EC1).</p> <p>E1.1.1.2 Does not have the documentation (EC 1).</p>	<p>Are the inspectors trained to locate the correct documentation?</p>
<p>E1.1.3.1 Does not know about the different types of defects (EC 1).</p> <p>E1.1.3.2 Does not know all the defects (EC 1).</p> <p>E1.1.3.3 Does not know about the criticality of defects (EC 1).</p> <p>E1.1.3.4 Does map the defects with criticality incorrectly (EC 1).</p> <p>E1.1.3.5 Does not know how often the defects occur (EC 1).</p> <p>E1.1.3.6 Does not know about the location of the defects (EC 1).</p> <p>E1.1.3.7 Does map the defects with location incorrectly (EC 1).</p>	<p>Are the inspectors trained to detect the different types of defects?</p> <p>Are the inspectors trained to map the defects with criticality?</p> <p>Are the inspectors trained to determine the probability of the occurring defects?</p> <p>Are the inspectors trained to locate the defects correctly?</p>

EC 1 TYPE ERROR	TRAINING NEEDS
<p>E1.1.4.1 Does not know how to select the starting point for search (EC 1).</p> <p>E1.1.4.2 Does not know the starting point for the search (EC 1).</p>	<p>Are the inspectors well versed with how to start a search?</p>
<p>E1.1.5.1 Does not know what a search strategy is (EC 1).</p> <p>E1.1.5.2 Does not how to select a search strategy (EC 1).</p>	<p>Are the inspectors trained to form the correct search strategy?</p>
<p>E1.2.1.1.1 Does not collect the mirror (EC 1).</p> <p>E1.2.1.2.1 Does not collect the magnifying loupe (EC 1).</p> <p>E1.2.1.3.1 Does not collect the cleaning cloth at the required time (EC 1).</p> <p>E1.2.1.4.1 Does not collect the measuring equipment (EC 1).</p>	<p>Are the inspectors trained on collecting the appropriate equipment?</p>

EC 1 TYPE ERROR	TRAINING NEEDS
E1.2.1.5.1 Does not collect the support equipment (EC 1).	Are the inspectors trained on collecting the appropriate equipment?
E1.2.1.6.1 Does not know how to move the workbench closer to the aircraft (EC 1).	Are the inspectors trained on moving the support equipment closer to the aircraft?
E1.3.1.1 Does not check the mirror (EC 1). E1.3.1.3 Does not check the loupe (EC 1). E1.3.1.5 Does not check the cleaning cloth (EC 1).	Are the inspectors trained to check the mirror correctly? Are the inspectors trained to check the loupe correctly? Are the inspectors trained to check the cleaning cloth correctly?
E1.3.2.1 Does not know how to check support equipment (EC 1). E1.3.2.2 Does not check the support equipment (EC 1).	Are the inspectors trained to check the support equipment correctly?

EC 2 TYPE ERROR	TRAINING NEEDS
<p>E1.1.2.7 Does not create a mental model (EC 2).</p> <p>E1.1.2.8 Created an incorrect mental model (EC 2).</p> <p>E1.1.2.9 Created a mental model irrelevant to task and strategy (EC 2).</p> <p>E1.1.2.10 Does not know how to create a mental model (EC 2).</p>	<p>Are the inspectors trained to form the correct mental model?</p> <p>Are the inspectors trained to plan the correct strategy?</p>

EC 3 TYPE ERROR	TRAINING NEEDS
E1.1.1.5 Does not interpret the document correctly (EC 3).	Are the inspectors trained to read and interpret the correct documentation?
E4.1.4 Interprets the indication type incorrectly (EC 3).	Are the inspectors trained in identifying the correct indication type?
E4.2.4 Interprets the measurement of indication size incorrectly (EC 3).	Are the inspectors trained in measuring the indication size correctly?
E4.3.5 Interprets the comparison incorrectly (EC 3).	Are the inspectors trained in comparing the indication to standard correctly?

EC 4 TYPE ERROR	TRAINING NEEDS
E1.1.2.1 Does not plan the task (EC 4).	Are the inspectors trained to form the correct task?
E1.1.2.2 Does plan the task incorrectly (EC 4).	Are the inspectors trained to form the correct mental model?
E1.1.2.3 Does not plan the correct task (EC 4).	Are the inspectors trained to plan the correct strategy?
E1.1.2.4 Does not plan the strategy (EC 4).	
E1.1.2.5 Does plan the strategy incorrectly (EC 4).	
E1.1.2.6 Does not plan the correct strategy (EC 4).	

EC 5 TYPE ERROR	TRAINING NEEDS
E1.1.1.4 Does not know how to read the document (EC 5).	Are the inspectors trained to read and interpret the correct documentation?
E2.1.1.1 Does not know how to locate task area near the elevator (EC 5).	Are the inspectors trained on locating the task area near the elevator?
E2.2.1.1 Does not know how to move support equipment into place (EC 5).	Are the inspectors trained on handling the support equipment correctly?
E2.2.2.1 Does not know how to remove stinger, horizontal stabilizer fairings and trailing edge assembly (EC 5).	Are the inspectors trained on how to expose torque tubes by removing stinger, horizontal stabilizer fairings and trailing edge assembly?
E2.2.3.1 Does not know how to remove cotter pins, nuts, washers and bolts attaching push-pull tubes (EC 5).	Are the inspectors trained on removing cotter pins, nuts, washers and bolts attaching push-pull types at trim lab actuator?
E2.2.4.1 Does not know how to mark bolts for re-installation in the same push-pull tubes (EC 5).	Are the inspectors trained on marking the bolts for re-installation in the same push-pull tubes?
E2.2.5.1 Does not know how to disconnect torque tube from elevator horn (EC 5).	Are the inspectors trained on disconnecting torque tube from elevator horn by removing nuts, washers and bolts?

EC 5 TYPE ERROR	TRAINING NEEDS
E2.2.6.1 Does not know how to disconnect bonding jumper from horizontal stabilizer (EC 5).	Are the inspectors trained on disconnecting bonding jumper from horizontal stabilizer by removing screw?
E2.2.7.1 Does not know how to support the elevator and remove cotter pins, nuts, washers and bolts securing elevator to horizontal stabilizer (EC 5).	Are the inspectors trained on supporting torque tube from elevator horn by removing nuts, washers and bolts?
E2.2.8.1 Does not know how to remove the elevator by pulling aft (EC 5)	Are the inspectors trained on removing the elevator by pulling aft?
E4.1.1 Does not know the correct indication type (EC 5).	Are the inspectors trained in identifying the correct indication type?
E4.2.1 Does not know how to measure the indication size (EC 5).	Are the inspectors trained in measuring the indication size correctly?
E 4.3.1 Does not know the correct standards (EC 5). E4.3.3 Does not know how to compare the indication to standard (EC 5).	Are the inspectors trained in comparing the indication to standard correctly?

EC 5 TYPE ERROR	TRAINING NEEDS
E5.1.1 Does not know the correct defect location (EC 5).	Are the inspectors trained to check the correct location of defect?
E5.2.1 Does not know how to record the defect location (EC 5).	Are the inspectors trained to record the location of defect?
E5.3.1 Does not know the correct defect type (EC 5). E5.3.3 Does not know how to record the comments on a particular defect type (EC 5).	Are the inspectors trained to record the defect type and comments correctly?

EC 5 TYPE ERROR	TRAINING NEEDS
E5.4.2 Does not know how to make a final decision (EC 5).	Are the inspectors trained to make the correct final decision?
E5.4.1.1 Does not know how to sign off the work card (EC 5).	Are the inspectors trained on to sign off work card?
E6.1.1 Does not know to remove the equipments from the inspection area (EC 5). E6.1.2 Does not know to remove supplies from the inspection area (EC 5).	Are the inspectors trained to remove the equipment and supplies from the inspection area correctly?
E6.2.1 Does not know how to clean the equipment correctly (EC 5).	Are the inspectors trained on cleaning the equipment correctly?
E6.3.1 Does not know where to return the support equipment (EC 5). E6.3.2 Does not know the correct procedure to return support equipment (EC 5).	Are the inspectors trained on returning the support equipment to the storage?

EC 6 TYPE ERROR	TRAINING NEEDS
E1.1.1.3 Does read the document incorrectly (EC 6).	Are the inspectors trained to read and interpret the correct documentation?
	Are the inspectors well versed with how to start a search?
E1.1.4.3 Select the wrong starting point for search (EC 6).	
E1.1.5.3 Select the wrong search strategy (EC 6).	Are the inspectors trained to form the correct search strategy?
E1.2.1.1.2 Does collect the faulty mirror (EC 6).	Are the inspectors trained to collect the mirror?
E1.2.1.2.2 Does collect the faulty magnifying loupe (EC 6).	Are the inspectors trained to collect the magnifying loupe?
E1.2.1.4.2 Does collect the faulty measuring equipment (EC 6).	Are the inspectors trained to collect the measuring equipment?
E1.2.1.5.2 Does collect the faulty support equipment (EC 6).	Are the inspectors trained to collect the support equipment?
E1.2.1.6.2 Does not move the workbench closer to the aircraft. (EC 6)	Are the inspectors trained on moving the support equipment closer to the aircraft?
E1.3.1.3 Does check the mirror incorrectly (EC 6).	Are the inspectors trained to check the mirror correctly?
E1.3.1.6 Does check the loupe incorrectly (EC 6).	Are the inspectors trained to check the loupe correctly?
E1.3.1.9 Does check the cleaning cloth incorrectly (EC 6).	Are the inspectors trained to check the cleaning cloth correctly?
E1.3.2.3 Does check the support equipment incorrectly (EC 6).	Are the inspectors trained to check the support equipment correctly?

EC 6 TYPE ERROR	TRAINING NEEDS
E2.1.1.2 Does not locate the task area near the elevator (EC 6). E2.1.1.3 Locates the wrong task near the elevator (EC 6).	Are the inspectors trained on locating the task area near the elevator?
E2.2.1.2 Does not move support equipment into place (EC 6). E2.2.1.3 Does move the support equipment into inappropriate place (EC 6).	Are the inspectors trained on handling the support equipment correctly?
E2.2.2.2 Does not remove stinger, horizontal stabilizer fairings and trailing edge assembly (EC 6).	Are the inspectors trained on how to expose torque tubes by removing stinger, horizontal stabilizer fairings and trailing edge assembly?
E2.2.3.2 Does not remove cotter pins, nuts, washers and bolts attaching push-pull tubes (EC 6).	Are the inspectors trained on removing cotter pins, nuts, washers and bolts attaching push-pull types at trim lab actuator?
E2.2.4.2 Does not mark bolts for re-installation in the same push-pull tubes (EC 6). E2.2.4.3 Marks the bolts incorrectly (EC 6).	Are the inspectors trained on marking the bolts for re-installation in the same push-pull tubes?
E2.2.5.2 Does not disconnect torque tube from elevator hom (EC 6). E2.2.5.3 Disconnects the torque tube from elevator hom incorrectly (EC 6).	Are the inspectors trained on disconnecting torque tube from elevator hom by removing nuts, washers and bolts?

EC 6 TYPE ERROR	TRAINING NEEDS
<p>E2.2.6.2 Does not disconnect bonding jumper from horizontal stabilizer (EC 6).</p> <p>E2.2.6.3 Disconnects bonding jumper from horizontal stabilizer incorrectly (EC 6).</p>	<p>Are the inspectors trained on disconnecting bonding jumper from horizontal stabilizer by removing screw?</p>
<p>E2.2.7.2 Does not support the elevator and remove cotter pins, nuts, washers and bolts securing elevator to horizontal stabilizer (EC 6).</p> <p>E2.2.7.3 Supports the elevator and remove cotter pins, nuts, washers and bolts securing elevator to horizontal stabilizer incorrectly (EC 6).</p>	<p>Are the inspectors trained on supporting torque tube from elevator horn by removing nuts, washers and bolts?</p>
<p>E2.2.8.2 Does not remove the elevator by pulling aft (EC 6).</p> <p>E2.2.8.3 Does remove the elevator by pulling aft incorrectly (EC 6).</p>	<p>Are the inspectors trained on removing the elevator by pulling aft?</p>

EC 6 TYPE ERROR	TRAINING NEEDS
E4.1.2 Identifies the type of defect incorrectly (EC 6). E4.1.3 Forgets the area where the inspector has originally identified the indication (EC 6).	Are the inspectors trained in identifying the correct indication type?
E 4.2.2 Does not bring the correct equipment to measure the indication size (EC 6). E4.2.3 Measures the indication incorrectly (EC 6).	Are the inspectors trained in measuring the indication size correctly?
E4.3.2 Does not bring the correct standards documentation (EC 6). E4.3.4 Compares the indication to standard incorrectly (EC 6).	Are the inspectors trained in comparing the indication to standard correctly?
E5.1.2 Checks the defect location incorrectly (EC 6). E5.1.3 Misses the location where the inspector has originally identified the defect (EC 6).	Are the inspectors trained to check the correct location of defect?
E5.2.2 Does not bring the correct equipments to record the defect location (EC 6). E5.2.3 Records the indication incorrectly (EC 6).	Are the inspectors trained to record the location of defect?

EC 6 TYPE ERROR	TRAINING NEEDS
E5.3.2 Records the type of defect incorrectly (EC 6). E5.3.4 Records the comments incorrectly (EC 6).	Are the inspectors trained to record the defect type and comments correctly?
E5.4.1 Does not make the correct final decision (EC 6).	Are the inspectors trained to make the correct final decision?
E5.4.1.2 Does not bring the correct work card (EC 6). E5.4.1.3 Signs off the work card incorrectly (EC 6).	Are the inspectors trained on to sign off work card?
E6.1.3 Removes the equipments and supplies from the inspection area incorrectly (EC 6).	Are the inspectors trained to remove the equipment and supplies from the inspection area correctly?
E6.2.2 Does not bring the correct cleaning equipment (EC 6).	Are the inspectors trained on cleaning the equipment correctly?
E6.3.3 Does not return the support equipment to storage (EC 6).	Are the inspectors trained on returning the support equipment to the storage?

Appendix D4

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
1.1.1 Consists information on: <ul style="list-style-type: none"> Identifying the correct document. Reading the correct information. 	6.1.5 Documented procedures 6.4 Reports and documentation		
1.1.2 Consists information on: <ul style="list-style-type: none"> tasks strategies mental models planning the appropriate task planning the appropriate strategy creating appropriate mental models 	6.1 Selection of Parameters		
1.1.3 Consists information on: <ul style="list-style-type: none"> different types of defects criticality of the defects probability of the defects location of the defects correctly mapping the defects with criticality. correctly mapping the defects with location. 	5.0 Employer defined applications 6.3 Classification of indications per acceptance criteria	9.0 Acceptance / Rejection criteria	

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
1.1.4 <ul style="list-style-type: none"> Consists information on starting point for search. Consists of steps on correctly choosing the starting point for search. 	6.1 Selection of Parameters		
1.1.5 <ul style="list-style-type: none"> Consists information about various search strategies. Consists information on how to choose the appropriate strategy. 	6.1 Selection of Parameters		
1.2.1, 1.2.2 <ul style="list-style-type: none"> Consists information on tools required for a particular task. Consists information on using the tools and support equipment. Consists information about the mirror, magnifying loupe and cleaning cloth. Consists information on how to collect an appropriate mirror. Consists information on how to collect an appropriate magnifying loupe. Consists information on how to collect a cleaning cloth. Consists information about the support equipment required for a particular task. Consists information on substitute equipment if correct equipment is not available. 	4.0 Equipment		2.0 Equipment Accessories

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
1.3.1 <ul style="list-style-type: none"> Consists information on how to check the mirror. Consists information on how to check the loupe. Consists information on how to check the cleaning cloth. 	3.3 Material Attributes 4.0 Equipment	4.0 Material Attributes	
1.3.2 <ul style="list-style-type: none"> Consists information about the support equipment (Boroscope). Consists information on how to check the support equipment (Boroscope). Consists information on how to handle the support equipment. 	3.3 Material Attributes 4.0 Equipment	4.0 Material Attributes	
2.1.1 <ul style="list-style-type: none"> Consists information on task area. Consists information on locating the correct task area. Consists information on aircraft numerical locations. Consists information on clear landmarks to help define boundaries of an inspection task. 	6.1 Selection of parameters	6.0 Visual perception	
2.2.1 <ul style="list-style-type: none"> Consists information on adequate access equipment required for performing the task. Consists information on how to move the support equipment to an appropriate place. 	3.3 Material Attributes 4.0 Equipment	4.0 Material Attributes	
2.2.2 <ul style="list-style-type: none"> Consists information on how to remove the stinger, horizontal stabilizer fairings and trailing edge assembly exposing the torque tube. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
2.2.3 <ul style="list-style-type: none"> Consists information on how to remove cotter pins, nuts, washers and bolts attaching push-pull tubes at trim tab actuator. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation
2.2.4 <ul style="list-style-type: none"> Consists information on how to mark the bolts for re-installation in the same push-pull tubes. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation
2.2.5 <ul style="list-style-type: none"> Consists information on how to disconnect the torque tube from elevator horn by removing nuts, washers and bolts. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation
2.2.6 <ul style="list-style-type: none"> Consists information on how to disconnect bonding jumper from horizontal stabilizer by removing the screw. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation
2.2.7 <ul style="list-style-type: none"> Consists information on how to support the elevator and removal of cotter pins, nuts, washers and bolts securing the elevator to horizontal stabilizer. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation
2.2.8 <ul style="list-style-type: none"> Consists information on how to remove the elevator by pulling the aft. 	4.0 Equipment 6.0 Visual testing to specific procedures	5.10 Position	1.3 Test object characteristics 4.0 Interpretation/Evaluation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
4.1 <ul style="list-style-type: none"> Consists information on identifying the various types of indications. Consists information on correctly mapping the defect with area. Consists information on indications under special scrutiny. Consists information on experience required to be familiar with all indication types. Consists information on prototypical information with work cards. Consists information on correct quality and quantity of lighting required to ensure adequate recognition of indication. Consists information on correct terminologies used for each indication types listed in work card. Consists information on size or severity or severity level rejectable for a particular class of indication. 	2.0 Definitions 3.2 Lighting 3.5 Visual perception 6.1 Selection of parameters 6.3 Classification of indications per acceptance criteria 6.4 Reports and documentation	3.0 Lighting 6.0 Visual perception 9.0 Acceptance/ Rejection criteria 10.0 Recording and reports	1.1 Vision and light 1.3 Test object characteristics 4.3 Discontinuity variables affecting test results 4.6 Process for reporting visual discontinuities
4.2 <ul style="list-style-type: none"> Consists information on equipments required to measure indication area. Consists information on how to measure the indication area. Consists information on landmarks and work card. Consists information on locating and recognizing correct landmarks. Consists information on measuring graticule. Consists information on units on graticule and those specified in work card. 	4.0 Equipment 6.1.5 Documented procedures 6.3 Classification of indications per acceptance criteria 6.4 Reports and documentation	7.0 Equipment 9.0 Acceptance/ Rejection criteria 10.0 Recording and reports	2.0 Equipment accessories 2.3 Linear measurement 4.4 Determination of dimensions 4.6 Process for reporting visual discontinuities 5.0 Procedures and documentation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
4.3 <ul style="list-style-type: none"> Consists information about correct standards. Consists information on how to compare the indication with the standards. Consists information on physical comparison to standards. 	6.2 Test standards/ calibration	9.0 Acceptance/ Rejection criteria	3.9 Requirements
5.1 <ul style="list-style-type: none"> Consists information on correctly mapping the location with the defect. Consists information on how to check the defect location appropriately. Consists information on numerical location of data on work card. 	5.0 Employer defined applications 6.0 Visual testing to specific procedures 6.3 Classification of indications per acceptance criteria	9.0 Acceptance / Rejection criteria	5.0 Procedures and documentation
5.2 <ul style="list-style-type: none"> Consists information on equipments required to record defect location. Consists information on how to record the defect location appropriately. 	4.0 Equipment	7. 0 Equipment	2.0 Equipment accessories
5.3 <ul style="list-style-type: none"> Consists information about various defect types. Consists information about how to record the defect type. Consists information on how to comment about defect type. 	4.0 Equipment 6.0 Visual testing to specific procedures 6.4 Reports and documentation	10.0 Recording and reports	1.3 Test object characteristics 4.0 Interpretation/ Evaluation 5.0 Procedures and documentation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
5.4 <ul style="list-style-type: none"> Consists information on how to make a final decision. Consists information about various types of final decisions made for various types of indications. Consists information on the difference between an indication and a standard clearly beyond acceptance limit. 	6.2 Test standards and calibration 6.3 Classification of indications per acceptance criteria	9.0 Acceptance / Rejection criteria	5.0 Procedures and documentation
5.4.1 <ul style="list-style-type: none"> Consists information on how to sign off a work card. 	6.4 Reports and documentation	10.0 Recording and reports	5.0 Procedures and documentation
6.1 <ul style="list-style-type: none"> Consists information about how to remove equipments and supplies from inspection area. Consists information on checklist of equipment and supplies to ensure nothing is left in the inspection area. 	4.0 Equipment	7.0 Equipment	2.0 Equipment accessories
6.2 <ul style="list-style-type: none"> Consists information on cleaning the equipment correctly. Consists information on correct cleaning material required. Consists information on training inspectors on correct cleaning procedures. 	3.4 Environmental factors	5.2 Cleanliness	1.2.2 Cleanliness 5.0 Procedures and documentation

Training Content	ASNT Specifications		
	Level 1	Level 2	Level 3
6.3 <ul style="list-style-type: none"> • Consists information on the correct procedure to return the equipment. • Consists information on the correct place to return the equipment. • Consists information on how to safely move the support equipment. • Consists information on the procedure for safety check of equipment prior to storage. • Consists information on signing in and out the equipment correctly. 	3.3 Material attributes	4.0 Material attributes	5.0 Procedures and documentation

Appendix E Screenshots of GAITS

E1 Introduction Module

E2 Training Module

E3 Simulator Module

E4 Design and Analysis Module

Appendix E1


Introduction Module



Introduction Module Entry Screen

General Aviation Inspection Training System

Introduction




Units ▸ Inspection Types FARs Tools Factors Procedure

INSPECTION ▸ Inspection Menu

Who should use the software?

- General aviation (GA) inspectors
- Supervisors in the GA environment
- Trainers/Instructors
- Other Personnel involved in aviation inspection



⏮ ⏪ 02 of 02 ⏩ ⏭ ⏸ ⏹

Introduction Module > Inspection

General Aviation Inspection Training System

Introduction

Units ▸ Inspection **Types** FARs Tools Factors Procedure

TYPES ▸ Types Menu

Nondestructive inspection methods

The various types of non-destructive testing include

- Borescope inspection
- Radiographic inspection
- Thermal/Infrared inspection
- Laser holography inspection
- Eddy current inspection
- Ultrasonic inspection
- Magnetic particle inspection
- Liquid penetrant inspection



◀◀ 04 of 20 ▶▶ || ↺

Introduction Module > Types of Inspection

General Aviation Inspection Training System

Introduction

Units ▶ Inspection Types **FARs** Tools Factors Procedure

FARs ▶

Federal Aviation Regulations


Most general aviation maintenance procedures are governed by

- FAR 91: General Operating and Flight Rules
- FAR 135: Operating requirements: Commuter and on demand operations and rules governing persons on board such aircraft
- FAR 145: Repair stations

Inspectors should also refer to:

- FAR 39: Airworthiness directives
- FAR 43: Maintenance, preventive maintenance, rebuilding, and alteration

(Note: Please refer to the following website for detailed information on these FARs:
http://www.access.gpo.gov/nara/cfr/cfrhtml_00/Title_14/14tab_00.html)



◀ ◀ 01 of 01 ▶ ▶ || ↺

Introduction Module > Federal Aviation Regulations (FARs)

General Aviation Inspection Training System


Introduction

Units ▶ Inspection Types FARs **Tools** Factors Procedure

TOOLS ▶

Common tools used in General Aviation Inspection

- Flashlight
- Mirror
- Magnifying Glass
- Ruler



Navigation: ⏮ ⏪ 01 of 01 ⏩ ⏭ || ↺

Introduction Module > Tools used in Inspection

General Aviation Inspection Training System

Introduction


Units ▶ Inspection Types FARs Tools **Factors** Procedure

FACTORS ▶ Factors Menu

Inspection task factors

The critical inspection task factors that influence inspection performance are:

- Shape of the viewing area
- The product complexity
- The spatial distribution of items
- Fault probability
- Fault mix
- Fault obviousness
- Fault standards



14 of 27

Introduction Module > Factors affecting Inspection

General Aviation Inspection Training System

Introduction


Units ▸ Inspection Types FARs Tools Factors Procedure

PROCEDURE ▸ Procedure Menu

Procedure for General Aviation Inspection

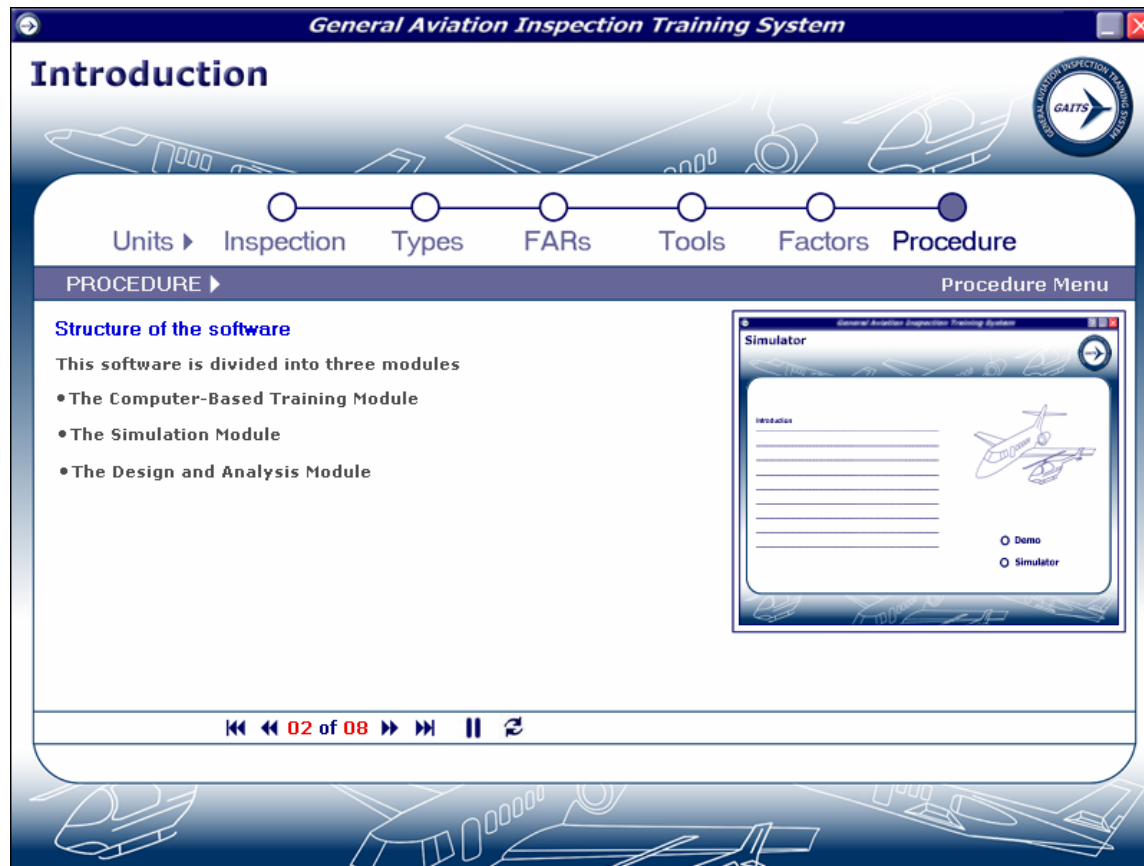
Aircraft inspection involves

- Initiating the inspection
- Accessing the various parts of the aircraft
- Searching for the different types of defects using the appropriate aids if necessary
- Making decisions on the criticality or occurrence of the defects
- Responding to the problems
- Returning the equipment to the storage



01 of 08

Introduction Module > Procedures for Inspection



Introduction Module > Procedures for Inspection

General Aviation Inspection Training System


Introduction

Units ▶ Inspection Types FARs Tools Factors Procedure

PROCEDURE ▶ Procedure Menu

Search

Search involves scanning the inspection area for indications of defects using a good search strategy. Each inspection area is searched first by the field of view, and each field of view is then searched through eye fixations.



◀◀ 05 of 08 ▶▶ || ↺

Introduction Module > Procedures for Inspection

Appendix E2

Training Module



Training Module Entry Screen

General Aviation Inspection Training System


Training

Units ▸ **Initiate** Access Search Decision Respond Return

INITIATE ▸ UOV | DEF | POB ▸ POB-1 | POB-2 | POB-3 | Quiz Initiate Menu

UOV: Unit Overview

- Definition
- Performance objectives
 - Types of errors
 - Good practices
 - Reasons for the good practices



Navigation: ⏮ ⏪ 01 of 19 ⏩ ⏭ || 🔍

Training Module > Initiate > Overview

General Aviation Inspection Training System

Training

Units ▶ Initiate Access Search Decision Respond Return

INITIATE ▶ UOV | DEF | POB ▶ POB-1 | POB-2 | POB-3 | Quiz Initiate Menu

DEF: Definition

Initiate begins the visual inspection process. In this first step the inspector follows validated guidelines using the correct documentation to plan the task appropriately.

Work Card

Sabreliner Wing Inspection

Step	Step Description	Signoff Required
1.	Inspect wing slats for cracks, dents, tears, corrosion, and loose rivets	T
2.	Inspect upper wing skin for cracks, buckles, dents	T

02 of 19

Training Module > Initiate > Defenition

General Aviation Inspection Training System

Training

Units ▸ Initiate Access Search Decision Respond Return

INITIATE ▸ UOV | DEF | POB ▸ POB-1 | POB-2 | POB-3 | Quiz Initiate Menu

POB: Performance Objectives

When you have finished this unit, you should be able to

- POB-1:** Use the documentation to plan the task
- POB-2:** Assemble all the necessary equipment for the inspection task
- POB-3:** Test and calibrate the equipment needed for the inspection



Navigation: ⏮ ⏪ 03 of 19 ⏩ ⏭ || 🔍

Training Module > Initiate > Performance Objectives

General Aviation Inspection Training System

Training

Units ▸ **Initiate** Access Search Decision Respond Return

INITIATE ▸ UOV | DEF | POB ▸ POB-1 | POB-2 | POB-3 | Quiz Initiate Menu

POB-1: Use the documentation to plan the task

Question

The video shows an inspector initiating the inspection process.
Which of the following best describe(s) the error made here?

The inspector

- A) Brought the incorrect documentation
- B) Did not have any documentation for initiating the inspection process

☒ A ☒ B **Correct**

Stopped

04 of 19

Training Module > Initiate > Performance Objectives > Interactive training

General Aviation Inspection Training System

Training

Units ▶ **Initiate** Access Search Decision Respond Return

INITIATE ▶ UOV | DEF | POB ▶ **POB-1** | POB-2 | POB-3 | Quiz Initiate Menu

POB-2: Assemble all the equipment for the inspection task

Question

The video shows an inspector taking equipment to conduct an inspection in an area that is poorly lit. Which of the following best describe(s) the error made here?

The inspector

- A) Does not collect all the necessary equipment
- B) Collects all the necessary equipment

A B Incorrect

Stopped

12 of 19

Training Module > Initiate > Performance Objectives > Interactive training

General Aviation Inspection Training System

Training

Units ▸ **Initiate** Access Search Decision Respond Return


INITIATE ▸ UOV | DEF | POB ▸ POB-1 | POB-2 | POB-3 | Quiz Initiate Menu

POB-3: Test and calibrate the equipment needed for the inspection task

Good Practices

Create a checklist containing the following information:

- An indication that the pieces of equipment are functioning properly
- An indication that all the equipment is clean and in good condition



18 of 19

Training Module > Initiate > Performance Objectives > Good Practices

General Aviation Inspection Training System

Training

Units ▶ **Initiate** Access Search Decision Respond Return

INITIATE ▶ UOV | DEF | POB ▶ POB-1 | POB-2 | POB-3| Quiz Initiate Menu

POB-3: Test and calibrate the equipment needed for the inspection task
Reasons for the good practices

Referring to a checklist reduces the amount of information the inspector needs to remember and helps him check the equipment.

STEP	CHECK
1. Check for work card	✓
2. Check for mirror, flash light and magnifying glass	✓
3. Check whether mirror, flashlight and magnifying glass are clean and unbroken	✓

If you would like to take the Quiz, click on Quiz button.

Quiz

19 of 19

Training Module > Initiate > Performance Objectives > Reasons for Good Practices

General Aviation Inspection Training System

Training

Quiz: Initiate

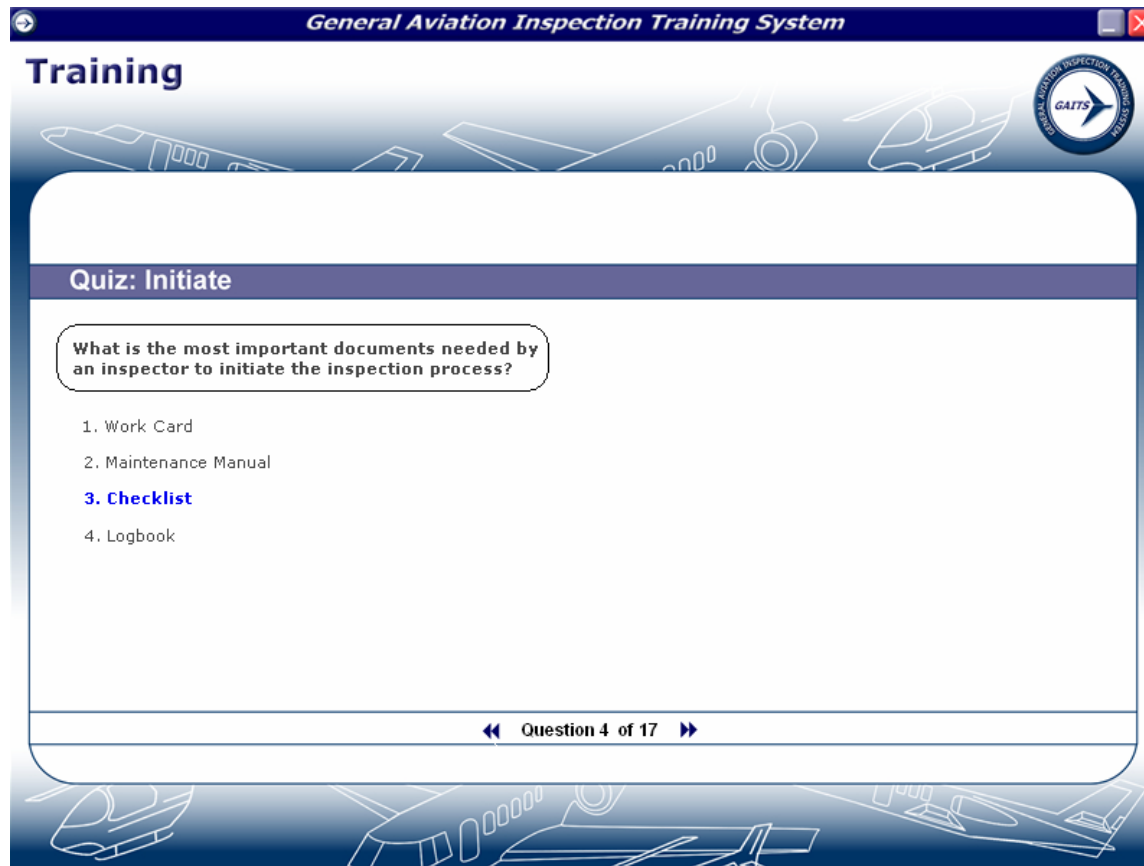
Enter the first name :

Enter the last name :

Enter the Student ID :

Submit

Training Module > Initiate > Quiz



Training Module > Initiate > Quiz

General Aviation Inspection Training System

Training

Units ▶
Initiate
Access
Search
Decision
Respond
Return

INITIATE ▶ UOV | DEF | **POB** ▶ POB-1 | POB-2 | POB-3 |
Quiz Initiate Menu

#	Title
01.	UOV: Unit Overview
02.	DEF: Definition
03.	POB: Performance objectives
POB-1: Use the documentation to plan the task	
04.	Question -1
05.	Error -1
06.	Good practices -1
07.	Reasons for the good practices -1
08.	Question -2
09.	Error -2
10.	Good practices -2
11.	Reasons for the good practices -2
POB-2: Assemble all the necessary equipment for inspection task	
12.	Question
13.	Error
14.	Good practices
15.	Reasons for the good practices
POB-3: Test and calibrate the equipment needed for the	

CHECK LIST
Sabreliner Wing Inspection

STEP	CHECK
1. Check for work card	✓
2. Check for mirror, flash light and magnifying glass	✓
3. Check whether mirror, flashlight and magnifying glass are clean and unbroken	✓

Quiz

⏮ ⏪ 19 of 19 ⏩ ⏭

Training Module > Initiate > Menu

General Aviation Inspection Training System


Training

Units ▸ Initiate **Access** Search Decision Respond Return

ACCESS ▸ UOV | DEF | POB ▸ POB-1 | POB-2 | Quiz Access Menu

UOV: Unit Overview

- Definition
- Performance objectives
 - Types of errors
 - Good practices
 - Reasons for the good practices



01 of 15

Training Module > Access > Overview

General Aviation Inspection Training System

Training

Units ▶ Initiate Access Search Decision Respond Return

ACCESS ▶ UOV | DEF | POB ▶ POB-1 | POB-2 | Quiz Access Menu

POB-1: Locate the task area

Error

Unable to locate the area to be inspected

Impact Variables					
Individual	Task	Environmental		Information	
		Physical	Organizational	Written	Oral
			✓		

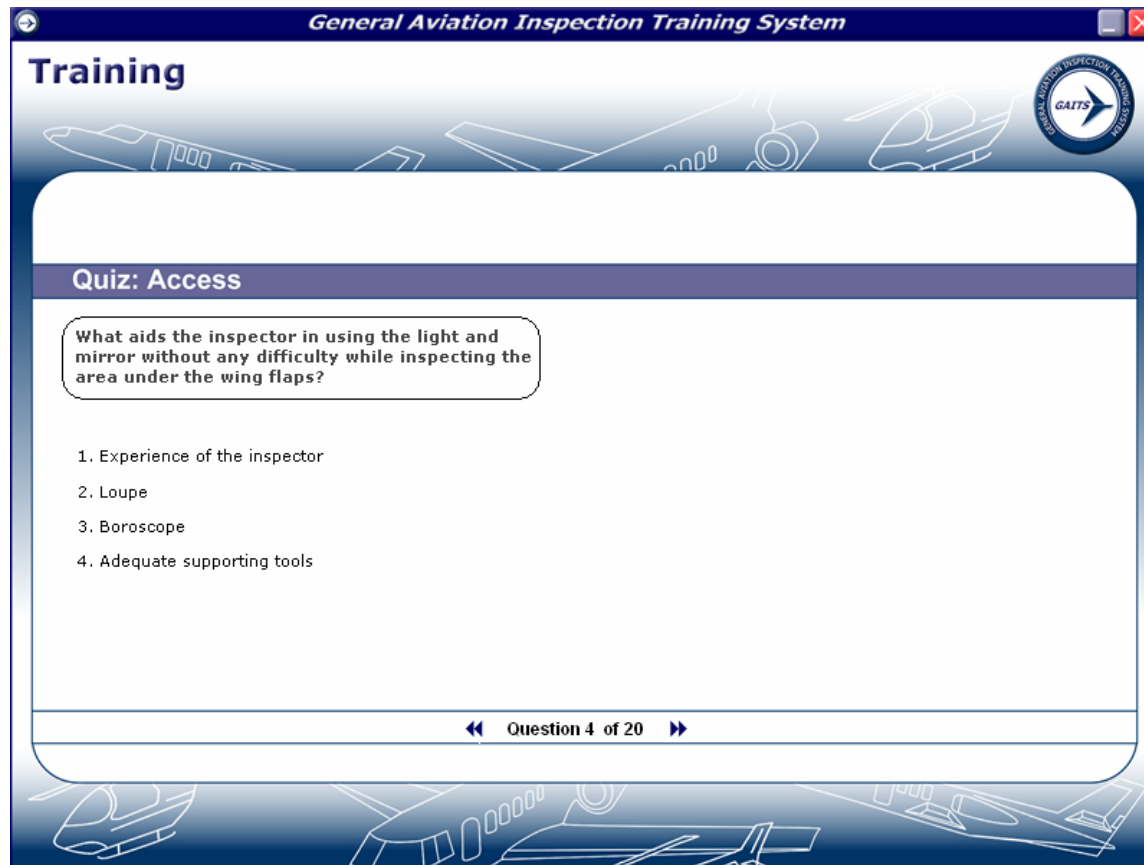
Work Card

Sabreliner Wing Inspection

Step	Step Description	Signoff Required
1.	Inspect wing slats for cracks, dents, tears, corrosion, and loose rivets;	T
2.	Inspect upper wing skin for cracks, buckles, dents	T

05 of 15

Training Module > Access > Performance Objectives



Training Module > Access > Quiz


General Aviation Inspection Training System

Training

Units ▸ Initiate Access Search Decision Respond Return

ACCESS ▸ UOV | DEF | POB ▸ POB-1 | POB-2 | Quiz Access Menu

#	Title
01.	UOV: Unit Overview
02.	DEF: Definition
03.	POB: Performance objectives
	POB-1: Locate the task area
04.	Question -1
05.	Error -1
06.	Good practices -1
07.	Reasons for the good practices -1
08.	Question -2
09.	Error -2
10.	Good practices -2
11.	Reasons for the good practices -2
	POB-2: Access the inspection area
12.	Question
13.	Error
14.	Good practices
15.	Reasons for the good practices




01 of 15

Training Module > Access > Menu

General Aviation Inspection Training System

Training



Units ▾ Initiate Access **Search** Decision Respond Return

SEARCH ▾ UOV | DEF | POB ▾ POB-1 | POB-2 | POB-3 | Quiz Search Menu


POB-1: Understand the various types of search strategies

Search Strategy

Search involves scanning a particular area for defects. The scanning strategy used by the inspector is critical in determining how he covers the entire search area. It ultimately determines his effectiveness and efficiency in locating defects.

The two types of search strategies are

- Random
- Systematic



04 of 24

Training Module > Search > Performance Objectives

General Aviation Inspection Training System

Training


Units ▶ Initiate Access **Search** Decision Respond Return

SEARCH ▶ UOV | DEF | POB ▶ POB-1 | POB-2 | POB-3 | Quiz Search Menu

POB-2: Search an inspection area for indications using the best search strategy

Indications are abnormalities of various depths and sizes occurring at different locations of the aircraft. They are caused by various kinds of defects in the aircraft. Whenever an indication is found, the inspector compares it with the recommended standard and then decides on a course of action.

In the search unit we are concerned only with identifying the indication; the analysis process is covered in the next unit, Decision.



07 of 24

Training Module > Search > Performance Objectives

General Aviation Inspection Training System

Training

Units ▶ Initiate Access **Search** Decision Respond Return

SEARCH ▶ UOV | DEF | POB ▶ **POB-1** | POB-2 | POB-3 | Quiz Search Menu

POB-3: Search the inspection area for indications

Question

Assume that you have completed half of an inspection task when one of your co-workers interrupts you, inviting you to take a break with him. What should you do?

A) I would stop the inspection to take a break with my co-worker, remembering the areas I have inspected and those I haven't. When I return, I would continue the inspection where I left off.

B) I would complete the inspection task while talking with my co-worker and then take a break.

C) I would complete the inspection task before taking a break with my co-worker.

A
B
C

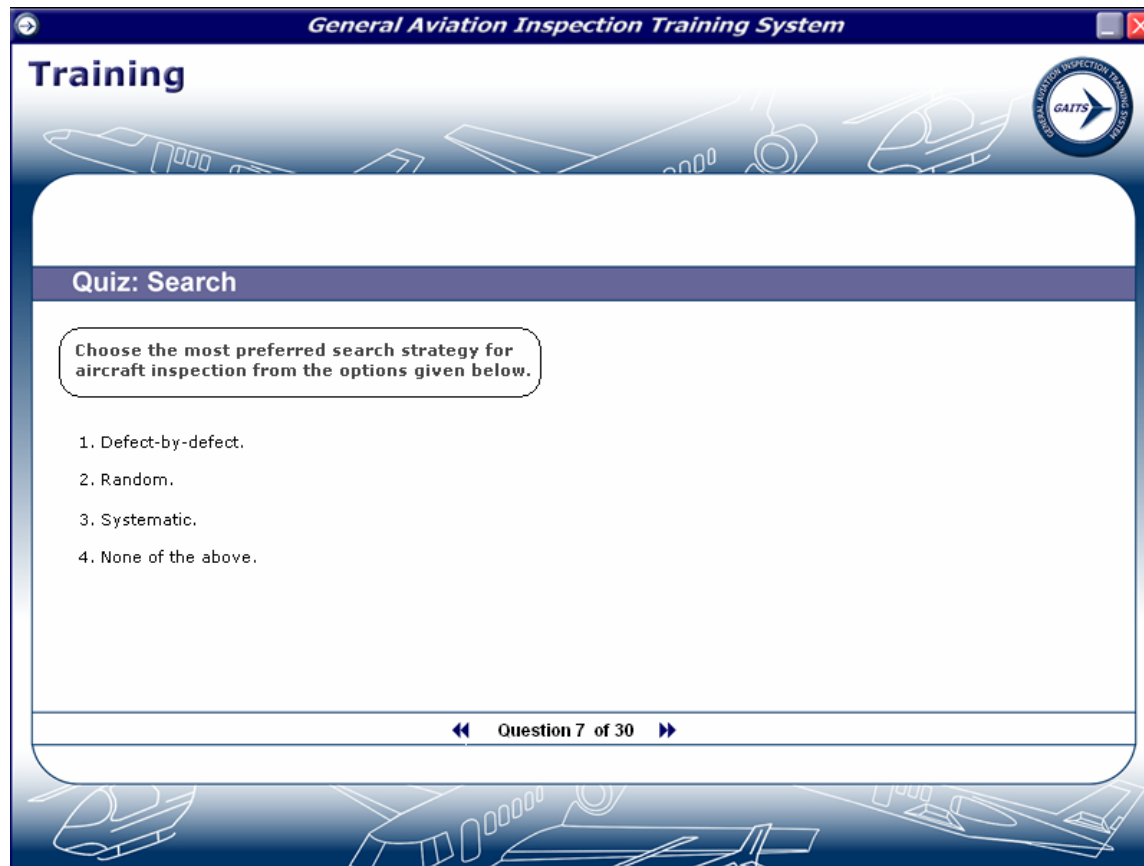
Correct

22 of 24

Last



Training Module > Search > Performance Objectives > Interactive Training



Training Module > Search > Quiz

General Aviation Inspection Training System


Training

GAITS

Units ▸ Initiate Access **Search** Decision Respond Return

SEARCH ▸ UOV | DEF | POB ▸ POB-1 | POB-2 | POB-3 | Quiz Search Menu

#	Title
01.	UOV: Unit Overview
02.	DEF: Definition
03.	POB: Performance objectives
	POB-1: Understand various types of search strategies
04.	Search Strategy
05.	Search Strategy: Random Search Strategy
06.	Search Strategy: Systematic Search Strategy
	POB-2: Search an inspection area for indications using the best search strategy
07.	Indications
08.	Question 1
	POB-3: Locate the indications in a search area
09.	Question 1.1
10.	Question 1.2
11.	Error 1
12.	Good practices 1
13.	Reasons for the good practices 1



01 of 24

Training Module > Search > Menu

General Aviation Inspection Training System

Training


Units ▶ Initiate Access Search **Decision** Respond Return

DECISION ▶ UOV | DEF | POB ▶ POB-1 | POB-2 | POB-3 | Quiz Decision Menu

POB-1: Identify the indication type

Good Practices

- Use manuals frequently to gain experience with all defect types
- Participate in both initial and recurrent training
- Use proper terminology and simple language based on FARS guidelines for easy understanding



◀◀ 06 of 27 ▶▶ || ↺

Training Module > Decision > Performance Objectives > Good Practices

General Aviation Inspection Training System

Training

Units ▶ Initiate Access Search **Decision** Respond Return

DECISION ▶ UOV | DEF | POB ▶ POB-1 | POB-2 | POB-3 | Quiz Decision Menu

POB-3: Compare indication to standard

Error

Did not use the correct standards documentation

Individual	Task	Impact Variables			
		Environmental		Information	
		Physical	Organizational	Written	Oral
✓			✓	✓	✓



21 of 27

Training Module > Decision > Performance Objectives > Error

General Aviation Inspection Training System

Training

Units ▸ Initiate Access Search **Decision** Respond Return

DECISION ▸ UOV | DEF | POB ▸ POB-1 | POB-2 | POB-3 | Quiz Decision Menu


POB-3: Compare indication to standard

Question

An inspector has identified the indication shown in the picture as normal corrosion. Do you think he is right in his interpretation?

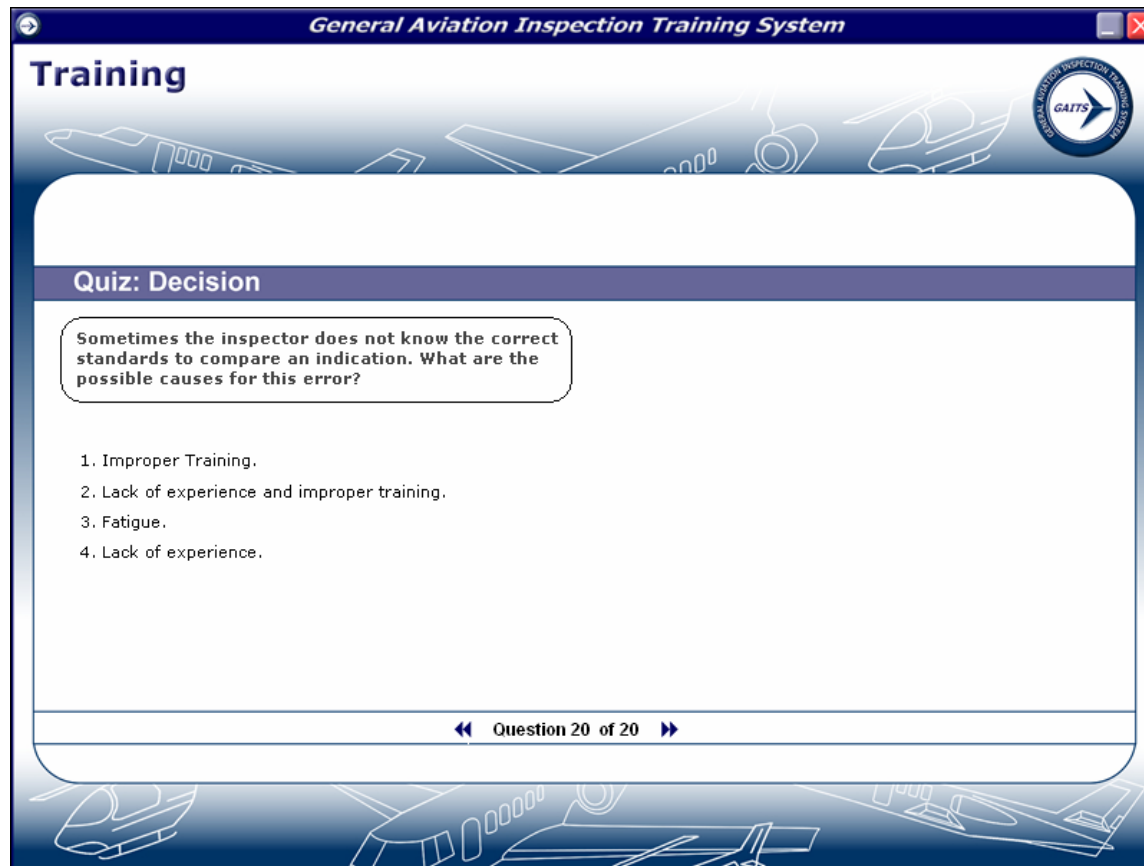
A) Yes
B) No

☐ A ☐ B



24 of 27

Training Module > Decision > Performance Objectives > Question



Training Module > Decision > Quiz

General Aviation Inspection Training System

Training

Units ▸ Initiate Access Search **Decision** Respond Return

DECISION ▸ UOV | DEF | POB ▸ POB-1 | POB-2 | POB-3 | Quiz Decision Menu

#	Title
01.	UOV: Unit Overview
02.	DEF: Definition
03.	POB: Performance objectives
	POB-1: Identify the indication type
04.	Question -1
05.	Error -1
06.	Good practices -1
07.	Reasons for the good practices -1
08.	Question -2
09.	Error -2
10.	Good practices -2
11.	Reasons for the good practices -2
	POB-2: Measure the indication size
12.	Question -1
13.	Error -1
14.	Good practices -1
15.	Reasons for the good practices -1



01 of 27

Training Module > Decision > Menu

General Aviation Inspection Training System

Training

Units ▶ Initiate Access Search Decision Respond Return

RESPOND ▶ UOV | DEF | POB ▶ POB-1 | POB-2 | Quiz Respond Menu

POB-1: Check and record defect location

Reasons for the good practices

By using the correct work card, the inspector will be able to record all the necessary information concerning the defect type, location, severity and comments correctly. If the inspector doesn't have the card with him, then he has to leave the inspection area to get it, an action which will affect the flow of the inspection task.

Non Routine Repair Card

Originated By	Item (Comments)
Authorized By	
Inspector	Correction
Mechanic	
JOB NO: CARD NO: DATE	

07 of 11

Training Module > Respond > Performance Objectives >Reasons for Good Practices

General Aviation Inspection Training System

Training

Units ▶ Initiate Access Search Decision Respond Return

RESPOND ▶ UOV | DEF | POB ▶ POB-1 | POB-2 | Quiz Respond Menu

POB-2: Record defect types (Write a Non Routine Repair Card)

Good Practices

The inspector has to make sure that he fills out all the sections of the NRR Card for every defect he finds. In case of uncertainty regarding the defect type, location or severity, obtaining information from supervisors will help the inspector fill out the card correctly.

Non Routine Repair Card

Originated By

GUV

Authorized By

Inspector

Mechanic

Item (Comments)

Defect type: Missing rivet

Location: Under the right wing

Severity: Have to replace

Correction

JOB NO:

W717

CARD NO:

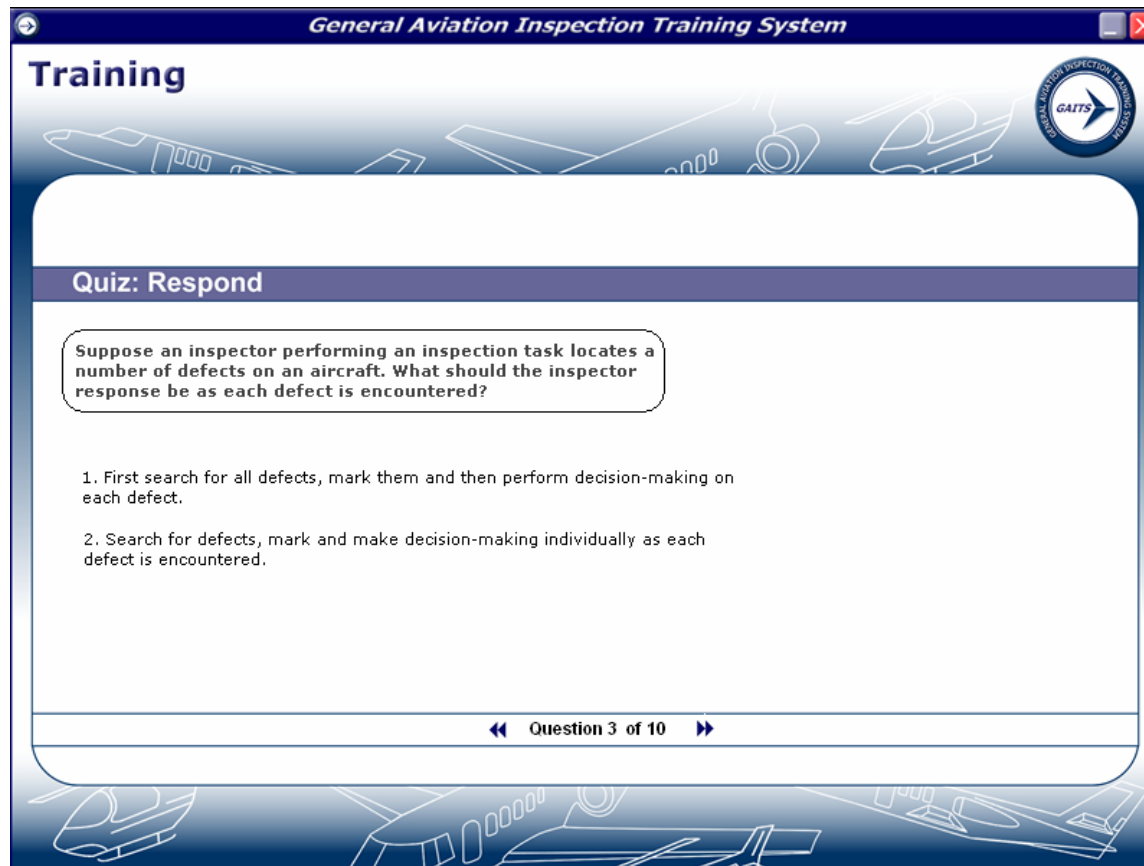
0313

DATE

3/23/04

10 of 11

Training Module > Respond > Performance Objectives > Good Practices



Training Module > Respond > Quiz


General Aviation Inspection Training System

Training

Units ▸ Initiate Access Search Decision **Respond** Return

RESPOND ▸ UOV | DEF | POB ▸ POB-1 | POB-2 | Quiz Respond Menu

#	Title
01.	UOV: Unit Overview
02.	DEF: Definition
03.	POB: Performance objectives
	POB-1: Check and record defect location
04.	Question
05.	Error
06.	Good practices
07.	Reasons for the good practices
	POB-2: Record defect types (write a non-routine repair card)
08.	Question
09.	Error
10.	Good practices
11.	Reasons for the good practices




01 of 11

Training Module > Respond > Menu

General Aviation Inspection Training System

Training



Units ▶ Initiate Access Search Decision Respond **Return**


RETURN ▶ UOV | DEF | POB ▶ POB-1 | **POB-2** | Quiz Return Menu

POB-2: Return the equipment to storage and the work card and documentation to the facility

Error

Did not return both the equipment to the storage area and the work card to the facility

Individual	Task	Impact Variables			
		Environmental		Information	
		Physical	Organizational	Written	Oral
			✓		



09 of 11

Training Module > Return > Performance Objectives > Error

General Aviation Inspection Training System

Training

Units ▶ Initiate Access Search Decision Respond **Return**

RETURN ▶ UOV | DEF | POB ▶ POB-1 | POB-2 | Quiz Return Menu

POB-2: Return the equipment to storage and the work card and documentation to the facility

[Reasons for the good practices](#)

- Easy transportation
- Ensuring serviceability
- Efficient sign in and out of the equipment and supplies

If you would like to take the Quiz, click on Quiz button.

Quiz



11 of 11

Training Module > Return > Performance Objectives > Reasons for Good Practices

General Aviation Inspection Training System


Training

GAITS

Units ▸ Initiate Access Search Decision Respond **Return**

RETURN ▸ UOV | DEF | **POB** ▸ POB-1 | POB-2 | Quiz Return Menu

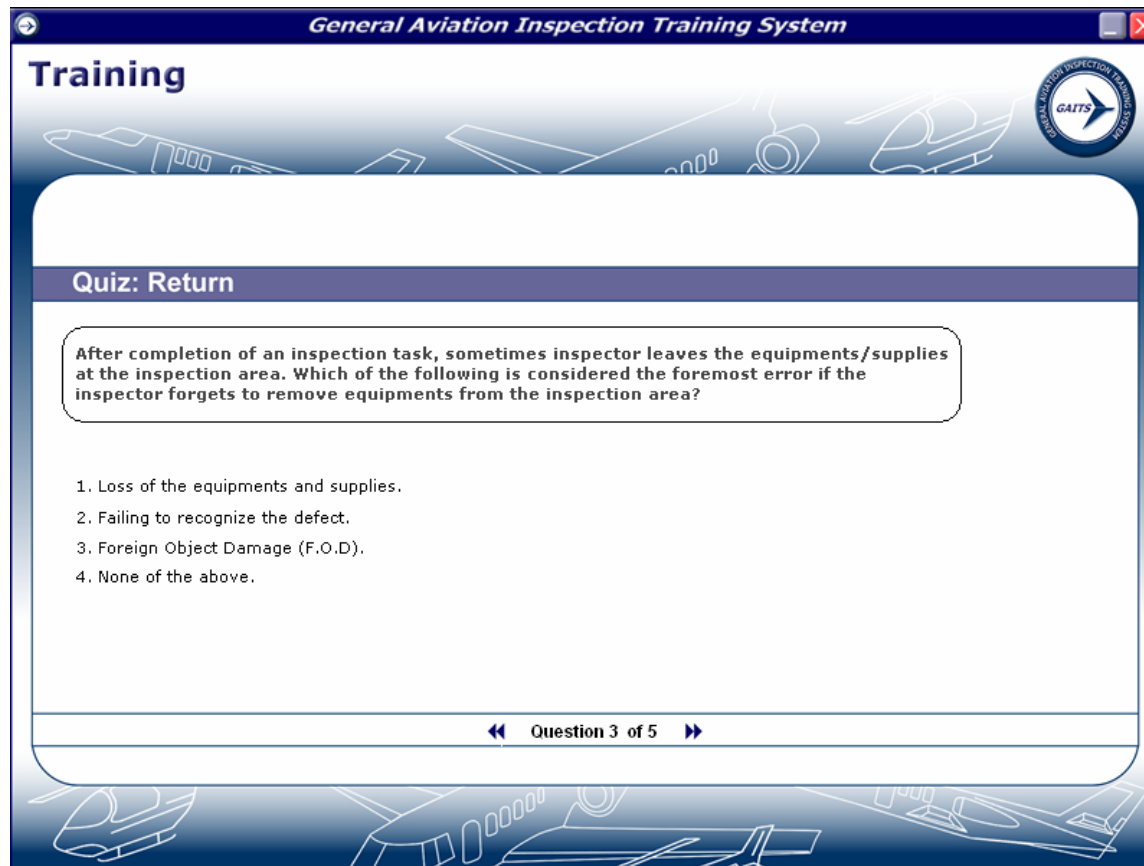
#	Title
01.	UOV: Unit Overview
02.	DEF: Definition
03.	POB: Performance objectives
	POB-1: Remove inspection equipment, check its condition and clean it
04.	Question
05.	Error
06.	Good practices
07.	Reasons for the good practices
	POB-2: Return the equipment to storage and the work card and documentation to the facility
08.	Question
09.	Error
10.	Good practices
11.	Reasons for the good practices



Quiz

⏮ ⏪ 11 of 11 ⏩ ⏭ ⏮ ⏪ 11 of 11 ⏩ ⏭

Training Module > Return > Menu



Training Module > Return > Quiz

Appendix E3

Simulator Module



Simulator Module Entry Screen

General Aviation Inspection Training System

Simulator



Existing users enter User ID and click "Enter"

User ID

Enter

New users click "Sign Up" now


Sign Up



Simulator Module Login Screen





Simulator Module > Demo > Entry Screen




Work Card Title: WING INSPECTION

Work Card No: 12345

Step	Step Description	Sign Off Required
1	Inspect wing slats for cracks, dents, tears, and corrosion	
2	Inspect upper wing skin for cracks, buckles, dents, corrosion, loose rivets or screws, and indication of fuel leaks	
3	Inspect lower wing skin for cracks, buckles, dents, corrosion, loose rivets or screws, and indication of fuel leaks	
4	Inspect aileron skin for tears, dents and cracks	
5	Inspect wing flap skin for cracks, buckles, dents and corrosion	

Close



Top Wing

Bottom Wing

NRR Cards:

Work Card

Navigation Controls

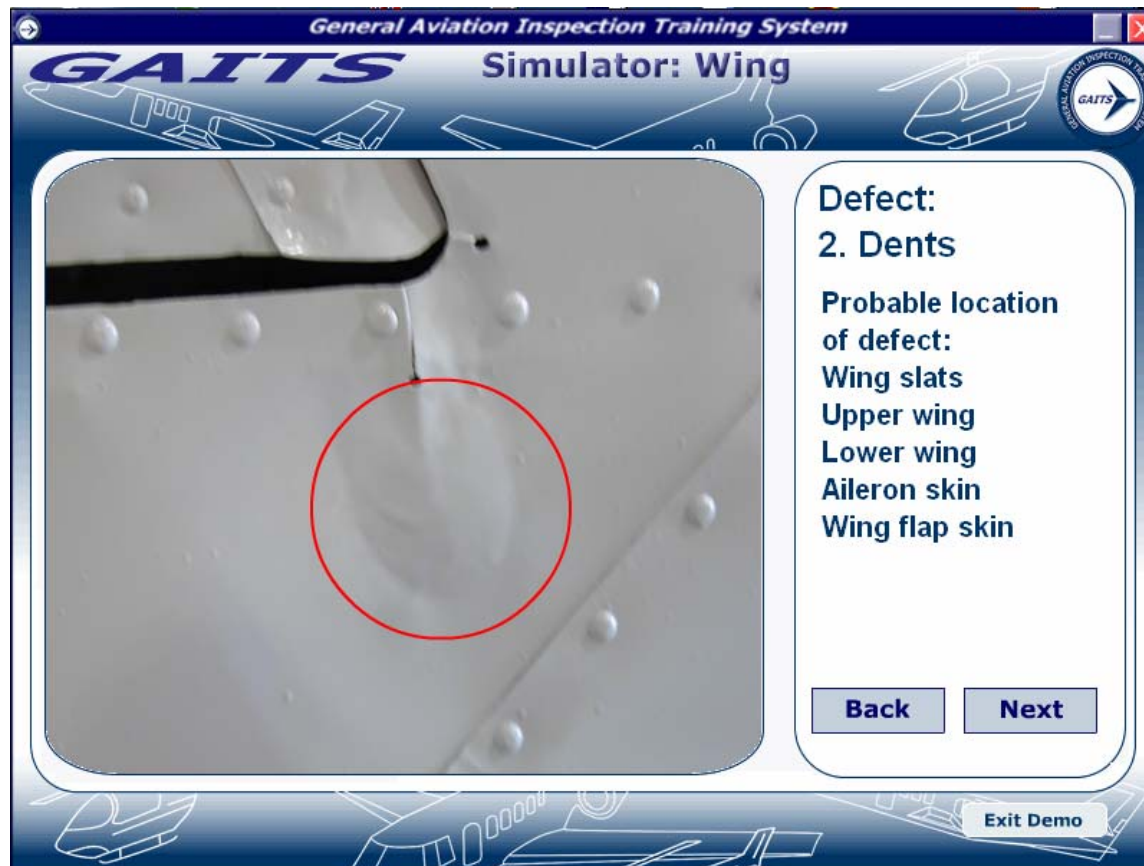
Tools

00:00:33

Work Card Complete

Exit Demo

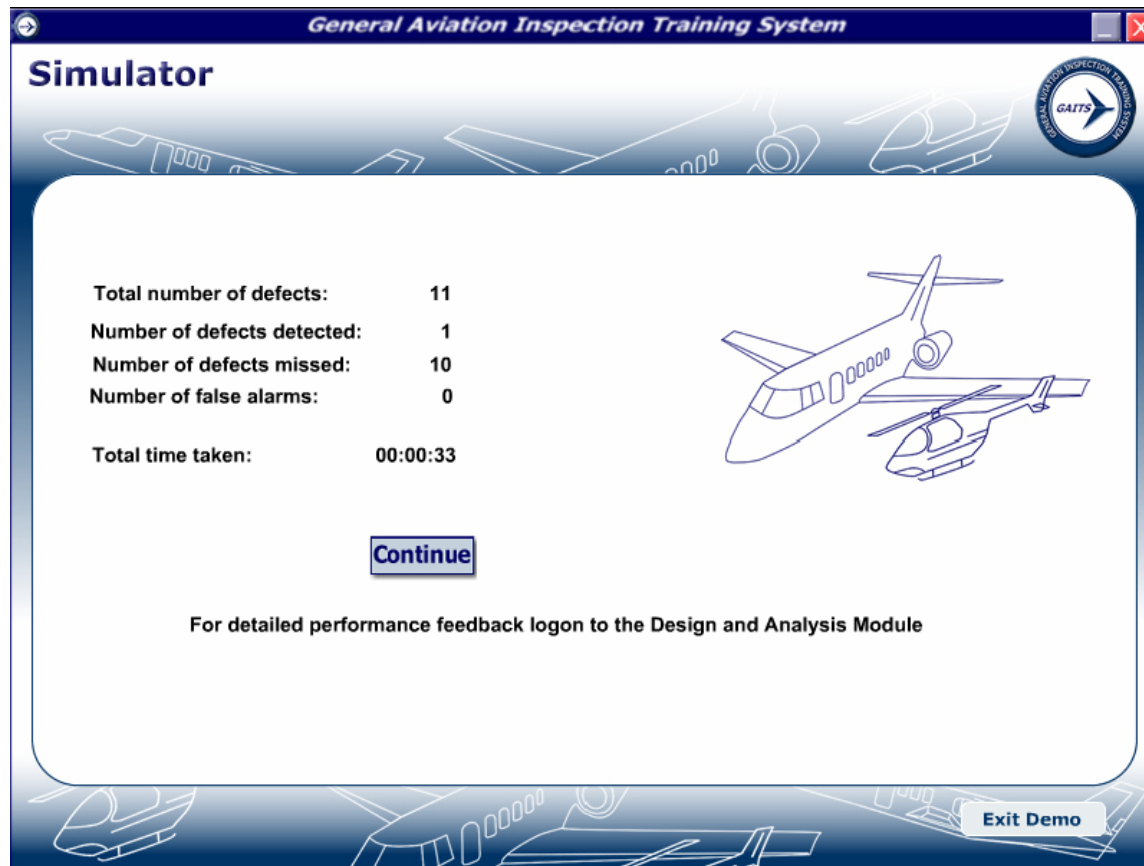
Simulator Module > Demo > Work Card



Simulator Module > Demo > Defect Training



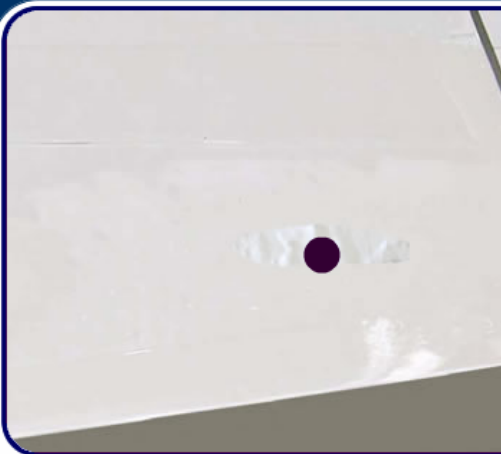
Simulator Module > Demo > Navigation



Simulator Module > Demo > Feedback Screen

General Aviation Inspection Training System

GAITS Simulator: Wing



Non Routine Report Card

Originated By
John

Authorised By
Doe

Inspector
gamgee

Job Number
top_default


Card Number
1

Date
1/30/2006

Item

Description

Cancel Submit



Top Wing NRR Cards:

Bottom Wing Work Card

00:00:25

Work Card Complete

Simulator Module > Inspection Task > Non Routine Report Card (NRR)



Simulator Module > Inspection Task > Using Job Aiding Tools > Magnifying Glass



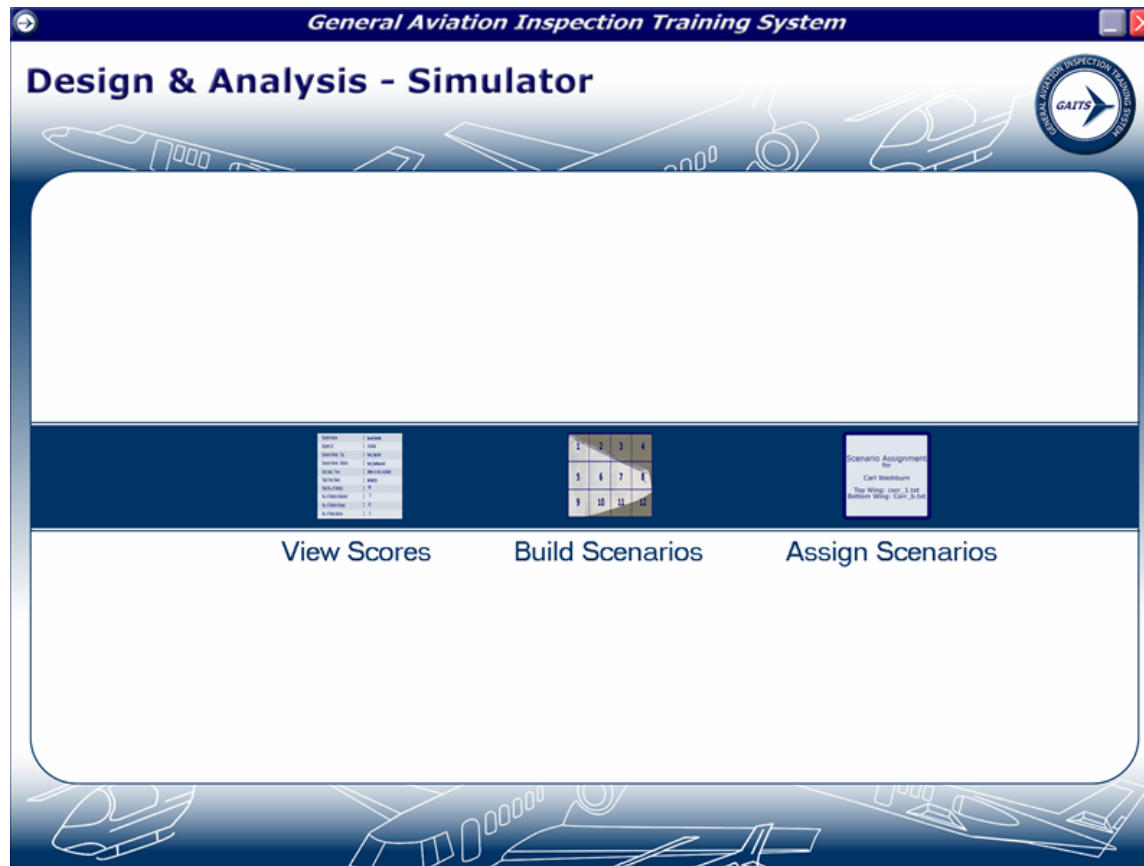
Simulator Module > Inspection Task > Using Job Aiding Tools > Flashlight



Simulator Module > Inspection Task > Exit Screen

Appendix E4


Design and Analysis Module



Design and Analysis Moldule - Simulator

General Aviation Inspection Training System

Design & Analysis - Simulator

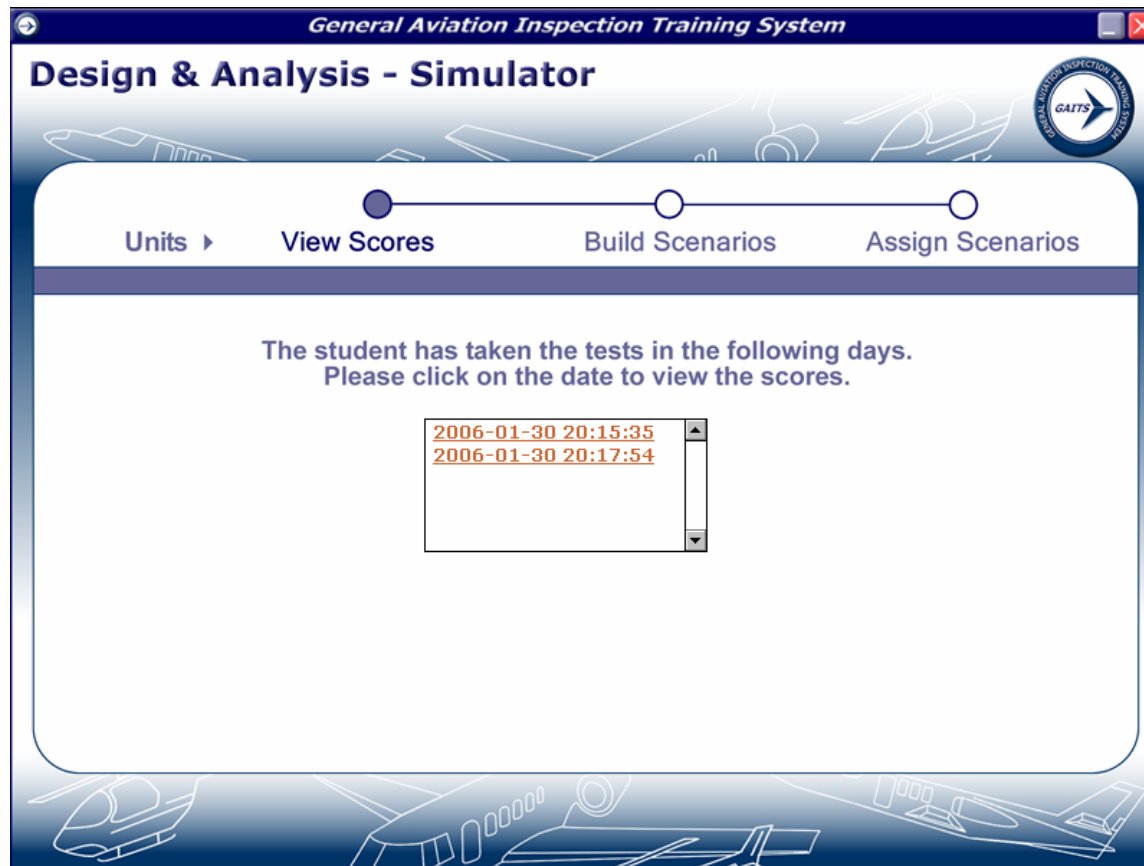


Units ▸ View Scores Build Scenarios Assign Scenarios

Enter the Student ID

Submit

Design and Analysis Module – Simulator > View Scores



Design and Analysis Module – Simulator > View Scores

General Aviation Inspection Training System

Design & Analysis - Simulator

Units ▸ View Scores Build Scenarios Assign Scenarios

SUMMARY RESULTS ▸ DETAILED RESULTS-TOP WING ▸ DETAILED RESULTS-BOTTOM WING

Student Name	:	sam wise
Student Id	:	gamgee
Scenario Name : Top	:	top_default.txt
Scenario Name : Bottom	:	bottom_default.txt
Test Date / Time	:	2006-01-30 20:17:54
Total Time Taken	:	00:05:52
Total No. of Defects	:	7
No. of Defects Detected	:	1
No. of Defects Missed	:	6
No. of False Alarms	:	0

Detailed Results **Top Wing** **Bottom Wing**

Design and Analysis Module – Simulator > View Scores > Summary Results – Top Wing

General Aviation Inspection Training System

Design & Analysis - Simulator

Units ▸ View Scores Build Scenarios Assign Scenarios

SUMMARY RESULTS ▸ DETAILED RESULTS-TOP WING ▸ DETAILED RESULTS-BOTTOM WING

Click on the wing location.

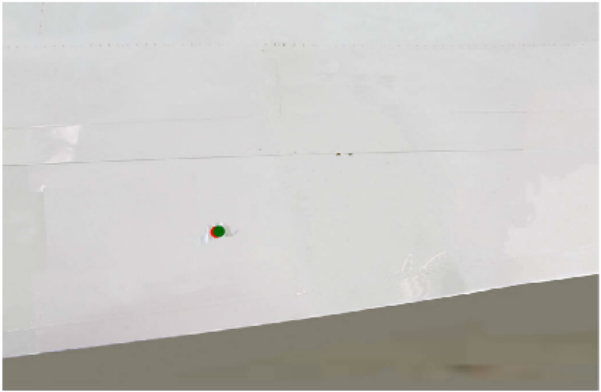
1	2	3	4
5	6	7	8
9	10	11	12

Defect Present : Corrosion
Defect Detected : YES
No. of False Alarms : 0

NRR Cards

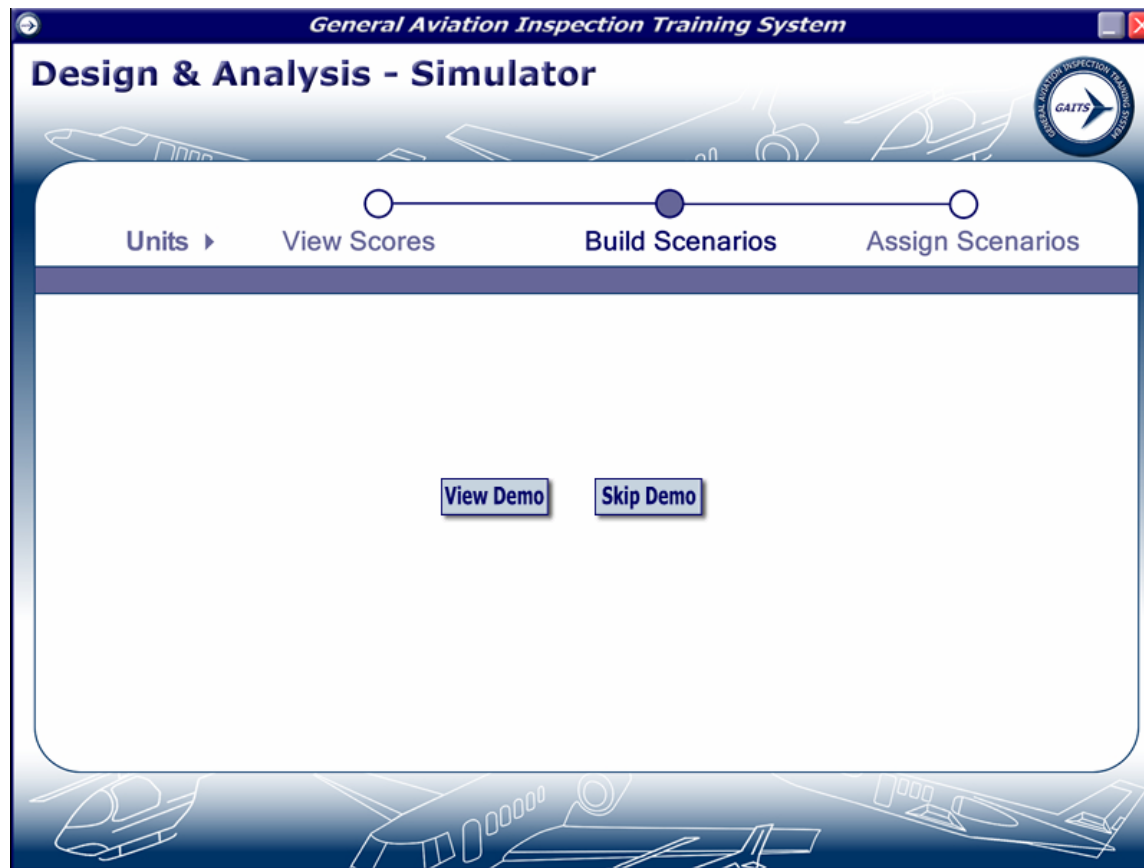
Click on individual items to view the card

Scenario Name : top_default.txt

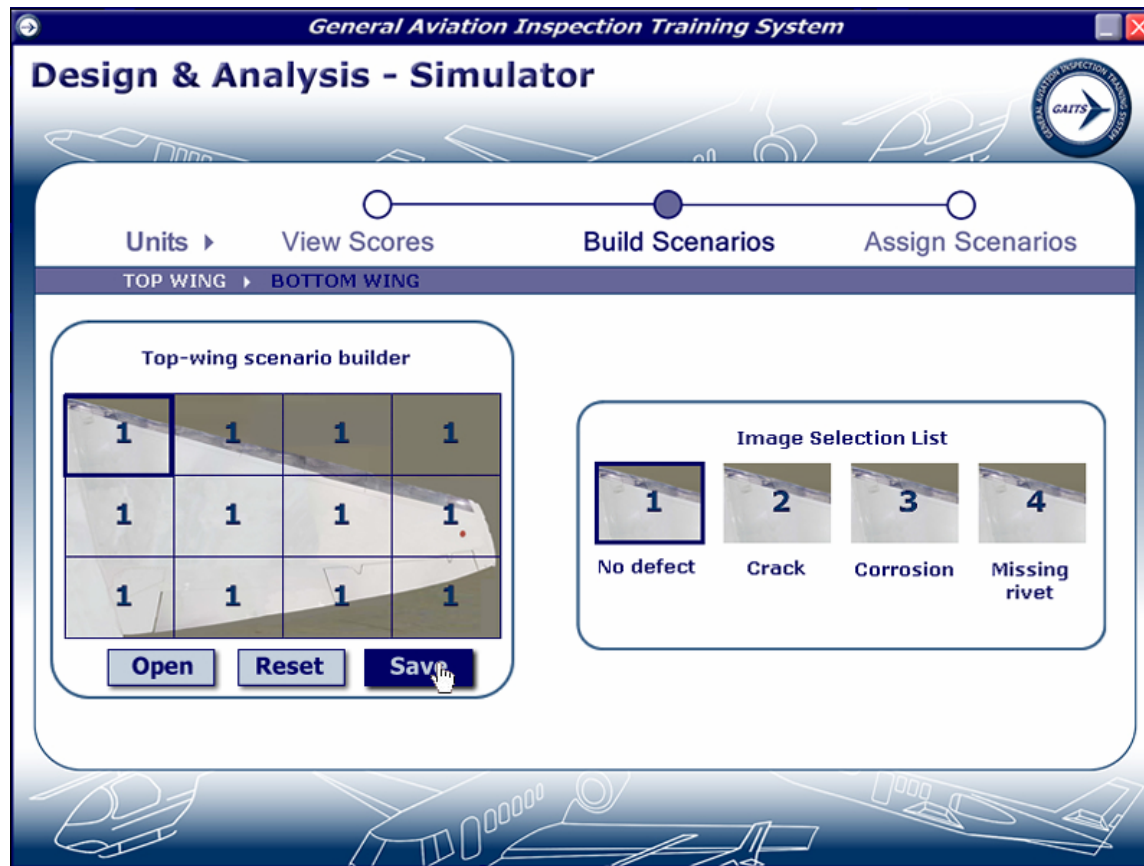


● Actual Defect Location ● Hit ● False Alarms

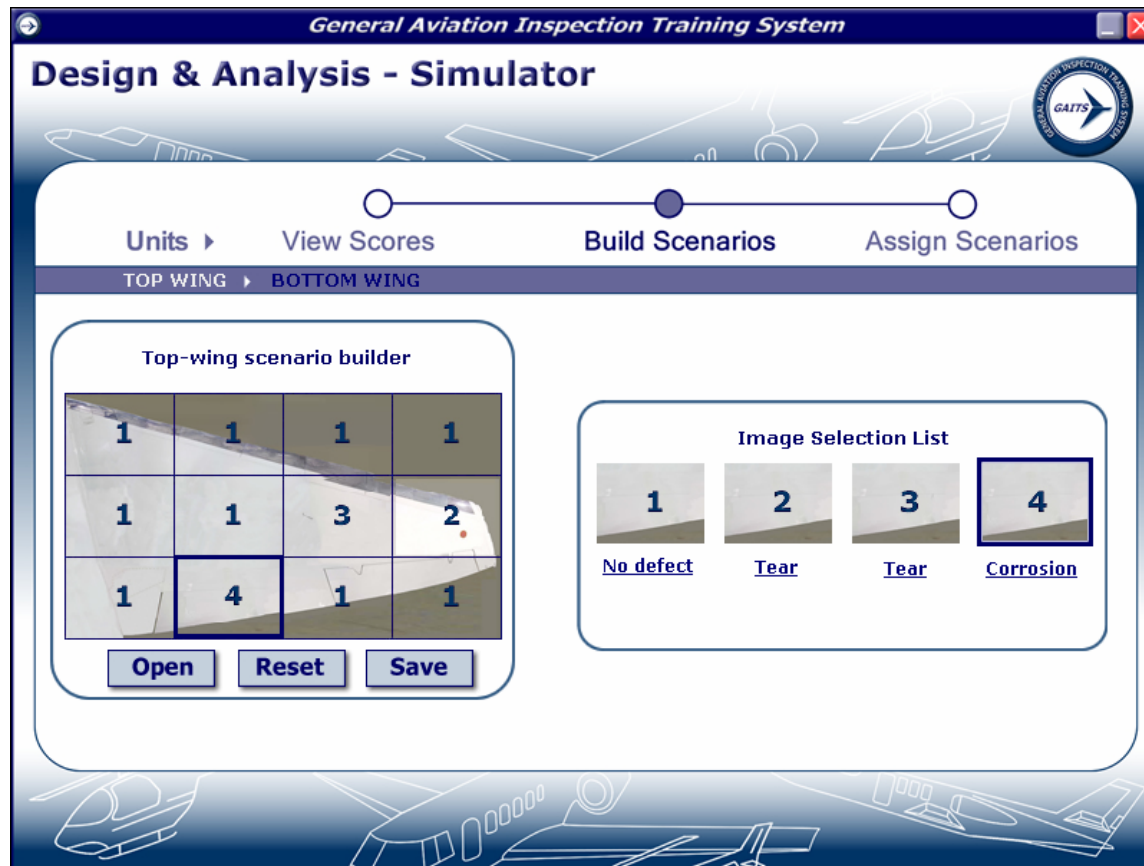
Design and Analysis Module – Simulator > View Scores > Detailed Results – Top Wing



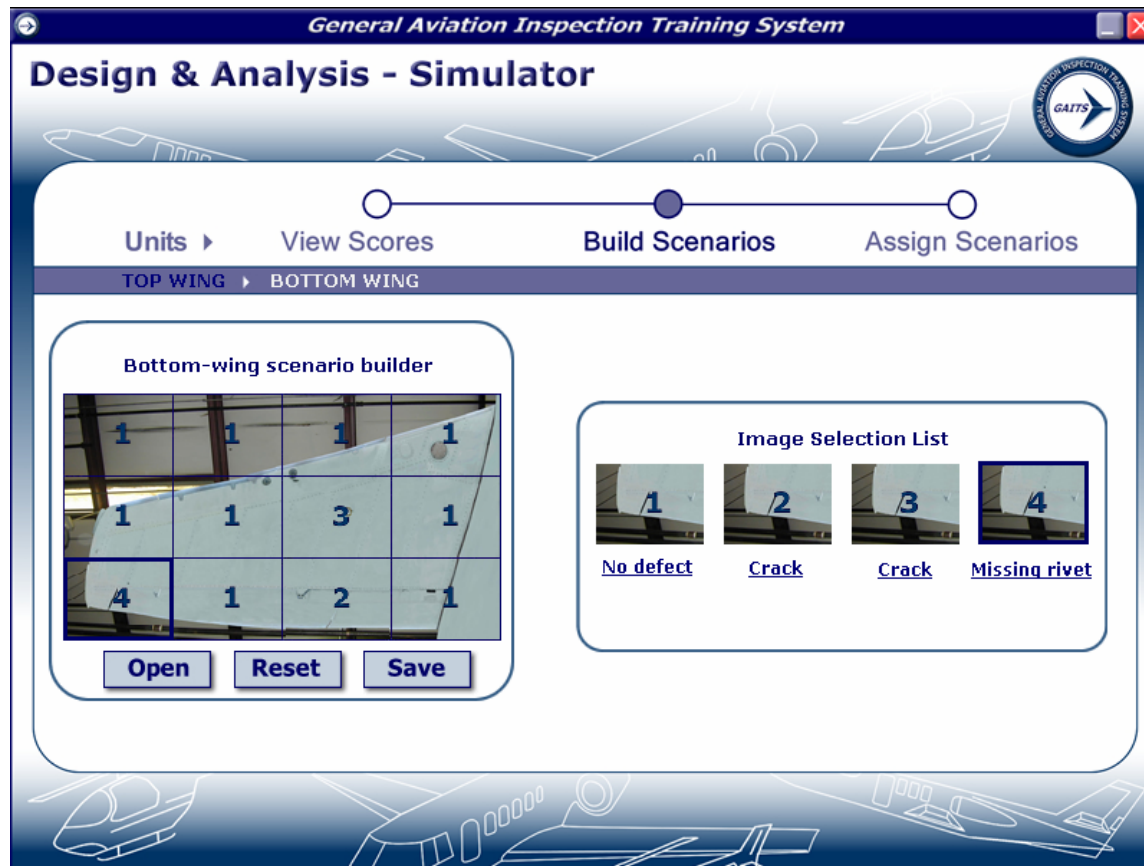
Design and Analysis Module – Simulator > Build Scenarios > Demo Entry Screen



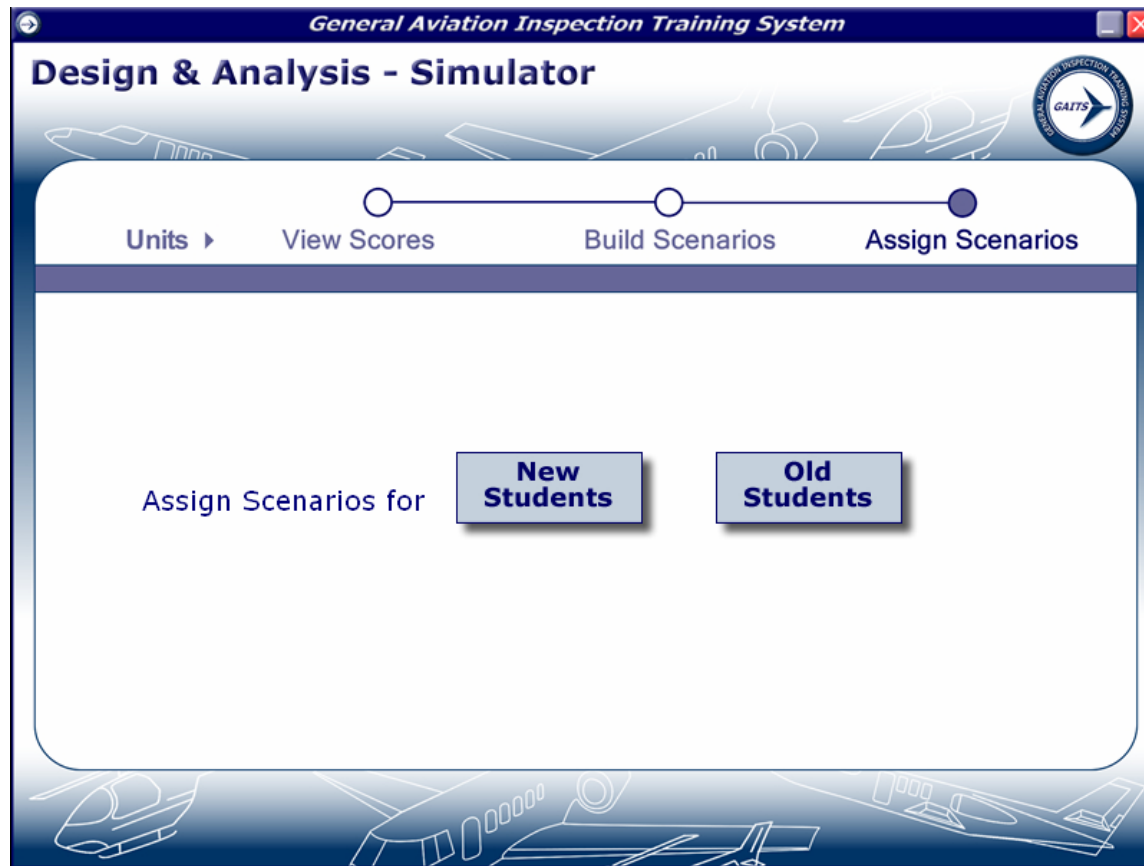
Design and Analysis Module – Simulator > Build Scenarios > Demo



Design and Analysis Module – Simulator > Build Scenarios > Top Wing




Design and Analysis Module – Simulator > Build Scenarios > Bottom Wing



Design and Analysis Module – Simulator > Assign Scenarios > Entry Screen

General Aviation Inspection Training System

Design & Analysis - Simulator



Units ▸ View Scores Build Scenarios **Assign Scenarios**

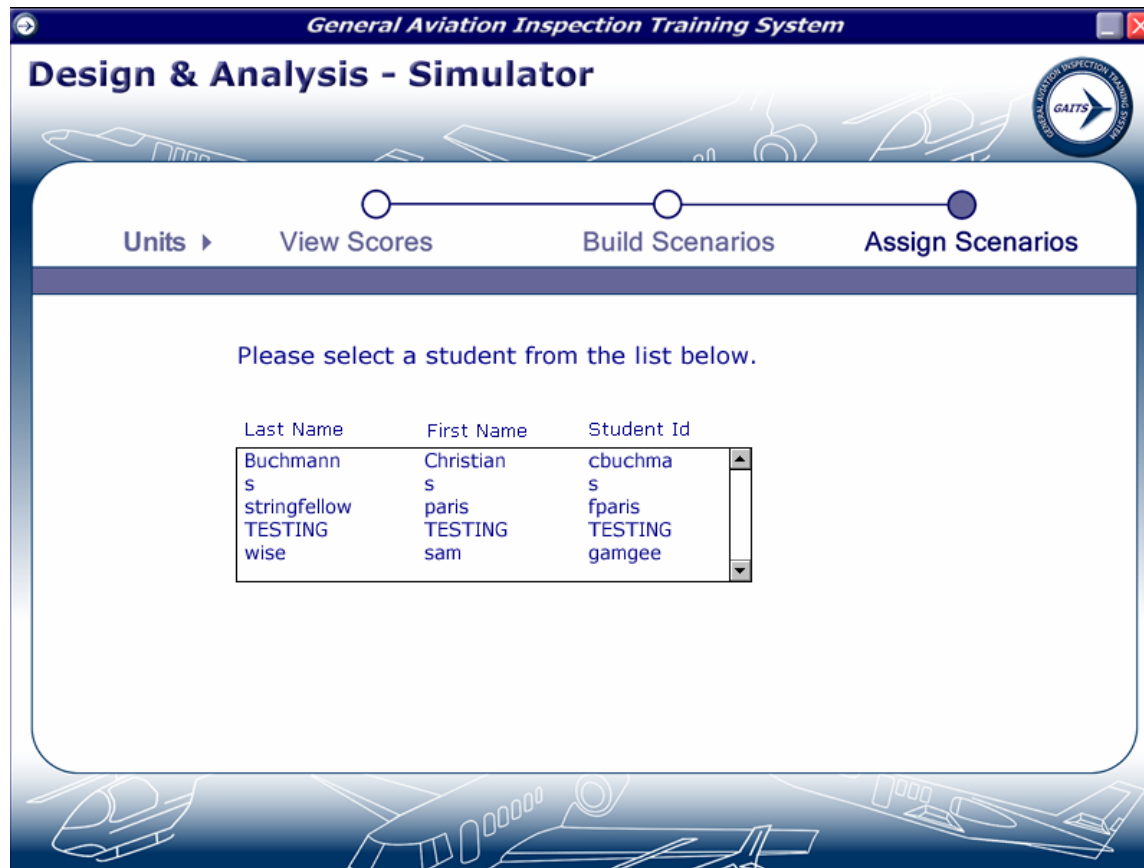
First Name

Last Name

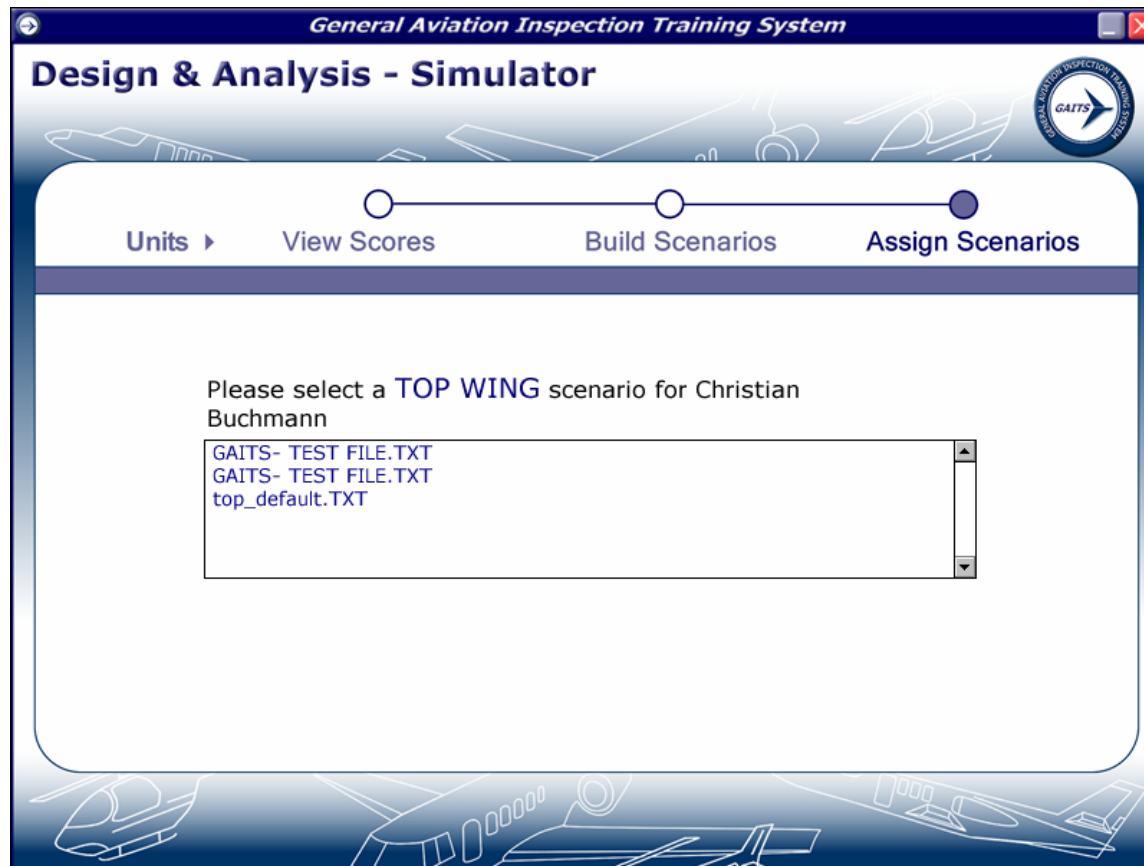
Student Id

Submit

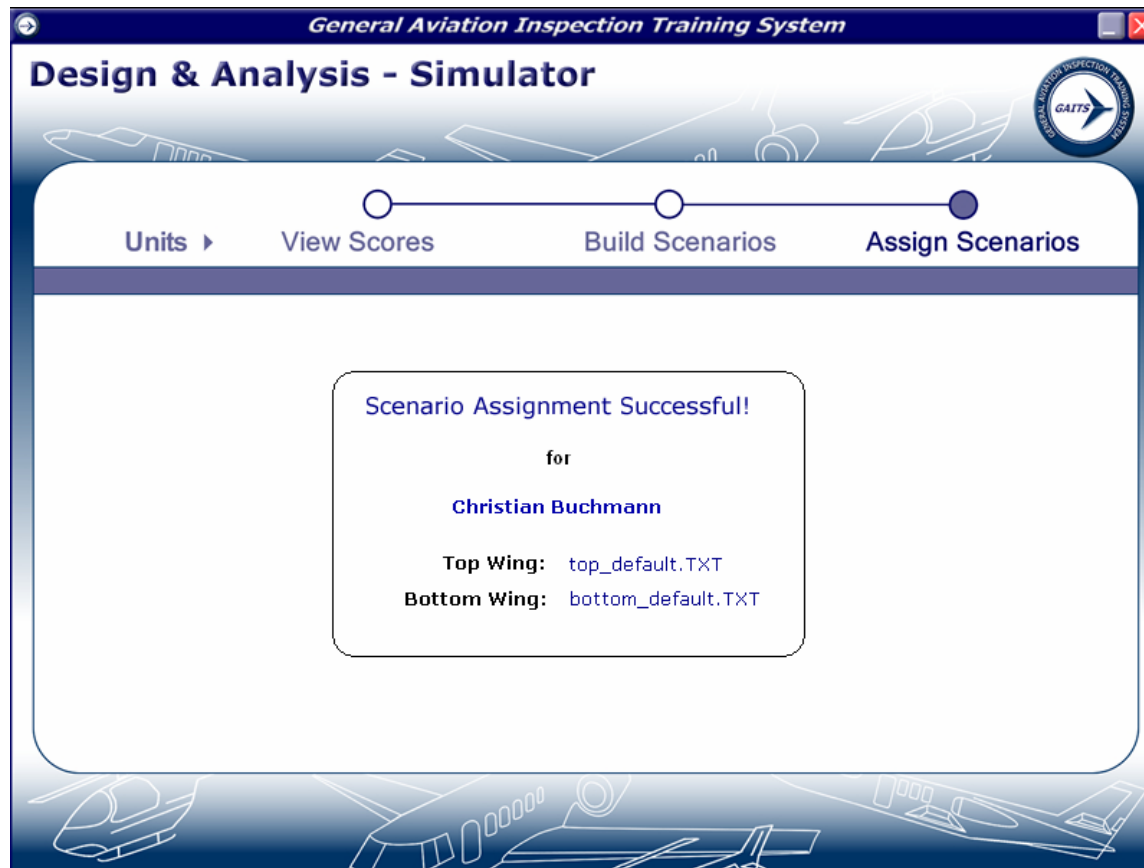
Design and Analysis Module – Simulator > Assign Scenarios > Create New Student Profile



Design and Analysis Module – Simulator > Assign Scenarios > Select Existing Student



Design and Analysis Module – Simulator > Assign Scenarios > Assign Top Wing Scenario



Design and Analysis Module – Simulator > Assign Scenarios > Assignment Summary

General Aviation Inspection Training System

Design & Analysis - Training

Student Performance Tracking

Enter the Student-ID :

Submit

Design and Analysis Module – Training > Entry Screen



Design and Analysis Module – Training > Select Unit

General Aviation Inspection Training System

Design & Analysis - Training

GAITS

Quiz Scores

Student Id	Last Name	First Name	Date	Time	Test No	Score
gamgee	wise	sam	1/31/2006	11:08 AM	1	12/30

Back

Design and Analysis Module – Training > Select Unit > Quiz Scores

General Aviation Inspection Training System

Design & Analysis - Training

Quiz Scores

Detailed Results for sam wise

Student Id	Test No	Score
gamqee	1	12/30

9.Human search lies somewhere in between random and systematic search. State True or False.
 1.True
 2.False
 3.<Wrong choice given>
 4.<Incomplete choices>
 Your Answer : 1
 Correct Answer: 1

10.How does the inspector come to know about the various types of defects that he needs to search for?
 1.Using intuition.
 2.Using experience.
 3.From the work card.
 4.From the maintenance manual.
 Your Answer : 2

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Design and Analysis Module – Training > Select Unit > Quiz Scores > Detailed Results

Appendix F

GAITS 1.0

General Aviation Inspection Training System

This document describes the GAITS Software, a computer-based training system for use in General Aviation inspection. For the most up-to-date version of this software, please download from the FAA's website.

CONTENTS

[System Requirements](#)

[Installation](#)

[Getting Started](#)

SYSTEM REQUIREMENTS

Minimum

- 350MHz Intel Pentium III processor or equivalent
- 64MB of RAM (128MB on Windows XP or later)
- 320 MB available disk space
- 16-bit sound card and speakers
- 65,000-color video display card set to display at 800x600 (video)
- Windows 98 SE, Windows ME, Windows NT 4.0 with Service Pack 6 or later (playback only), Windows 2000 with Service Pack 2 or later, or Windows XP

Recommended

- 500MHz Intel Pentium III processor or greater
- 128MB of RAM
- Full Duplex sound card and speakers
- 65,000-color video display card set to display at 800x600 or higher (video)
- 700+ MB available disk space for saving student performance files
- Windows 98 SE, Windows ME, Windows 2000 with Service Pack 2 or later, or Windows XP

*All brands and names are property of their respective owners.

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INSTALLATION

To install the GAITS software, follow the steps below.

1. Download GAITS online at <http://www.hf.faa.gov/hfmaint/Default.aspx?tabid=363>
2. Run 'setup.exe' to initiate the Install Wizard
3. Follow the instructions in the Install Wizard and click 'Finish' to complete install
4. GAITS is installed by default in the C:\Program Files\GAITS directory unless you specify otherwise.

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GETTING STARTED

GAITS is divided into 6 different modules: The Introduction Module, The Training Module, The Simulator Module, The Design and Analysis for the Training Module, and The Design and Analysis for the Simulator Module, where the first 3 modules are intended for use by novice inspectors (students) and the latter 2 are intended for use by expert inspectors (instructors).

- **Introduction Module**
Provides an instructional and interactive overview of GA inspection
- **Training Module**
Provides interactive instruction for GA inspection procedures and factors
- **Design and Analysis for the Training Module**
Enables instructors to customize training module activities and analyze student results
- **Simulator Module**
Allows trainees to practice inspection techniques and receive feedback on performance
- **Design and Analysis for the Simulator Module**
Enables instructors to customize simulator module scenarios and analyze student results

*If you are a **student**...*

Begin your inspection training by completing the Introduction Module. Once completed, you can move on to the Training module, where you will be tested on your knowledge through short quizzes. Finally, you can “field test” your knowledge by completing the inspection scenarios in the Simulator Module. Here, your performance can be recorded and measured by your instructor. To complete both the Training and Simulator Modules, you must first acquire a Student ID from your instructor.

*If you are an **instructor**...*

Before your students can begin using either the Training Module or the Simulator Module, you must first configure these modules by specifying a complete list of the students who will be using the modules and by designing the scenarios that the students will be using in the Simulator Module. Once you have configured the modules and the students have completed their training and simulation practice, you can evaluate their performance.

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Appendix G

Usability Analysis Results for Evaluation of Training Module

Likert Scale (1=Strongly Agree and 7=Strongly Disagree)

S. No.	Question	p-value
1	The amount of information presented was adequate	< 0.001
2	The topics were thoroughly covered.	< 0.001
3	The information presented was understandable.	< 0.001
4	The amount of information is extremely relevant to my job.	< 0.001
5	The videos were helpful in understanding the concepts presented.	< 0.001
6	The language used by the speaker was understandable.	< 0.001
7	The screens were understandable.	< 0.001
8	The information presented flowed smoothly.	< 0.001
9	The presentation was interesting.	< 0.001
10	The narration in the unit helped in understanding the material.	< 0.001
11	The training program was easy to use.	< 0.001
12	The colors used on the screen were pleasing.	< 0.001
13	The colors used on the screen did not distract from the task or cause eye discomfort.	< 0.001
14	The buttons on the screen were easy to understand.	< 0.001
15	The delays while the computer worked were not frustrating.	< 0.001
16	You were satisfied with the interaction with the computer.	< 0.001
17	The training program was effective in providing instruction.	< 0.001
18	It was easy to navigate through the training program.	< 0.001

Usability Analysis Results for Evaluation of the Design and Analysis Training Module

Likert Scale (1=Strongly Agree and 7=Strongly Disagree)

S. No.	Question	p-value
1	It was easy to navigate through the modules.	< 0.05
2	The information presented on screen was adequate to understand the function of this module.	< 0.05
3	The information presented was understandable.	< 0.05
4	The information presented was relevant to my job.	< 0.05
5	The presentation was interesting.	< 0.05
6	The colors used on the screen did not distract from the task or cause eye irritation.	< 0.05
7	The buttons on the screen were easy to understand.	< 0.05
8	The time for the computer to process information did not frustrate you.	< 0.05
9	You were satisfied with the interaction with the computer.	< 0.05
10	The colors used on the screen were pleasing.	< 0.05
11	The delays while the computer worked were not frustrating.	< 0.05
12	The colors used on the screen were pleasing.	< 0.05
13	The colors used on the screen did not distract from the task or cause eye discomfort.	< 0.05
14	The buttons on the screen were easy to understand.	< 0.05
15	The delays while the computer worked were not frustrating.	< 0.05
16	The section names were understandable	< 0.05
17	The training program was effective in providing instruction.	< 0.05
18	It was easy to navigate through the training program.	< 0.05